

THE OFFICIAL  
**GUIDE**  
and Descriptive Book  
**Panama California International Exposition**  
SAN DIEGO 1916



DESIGNED AND ENGRAVED BY  
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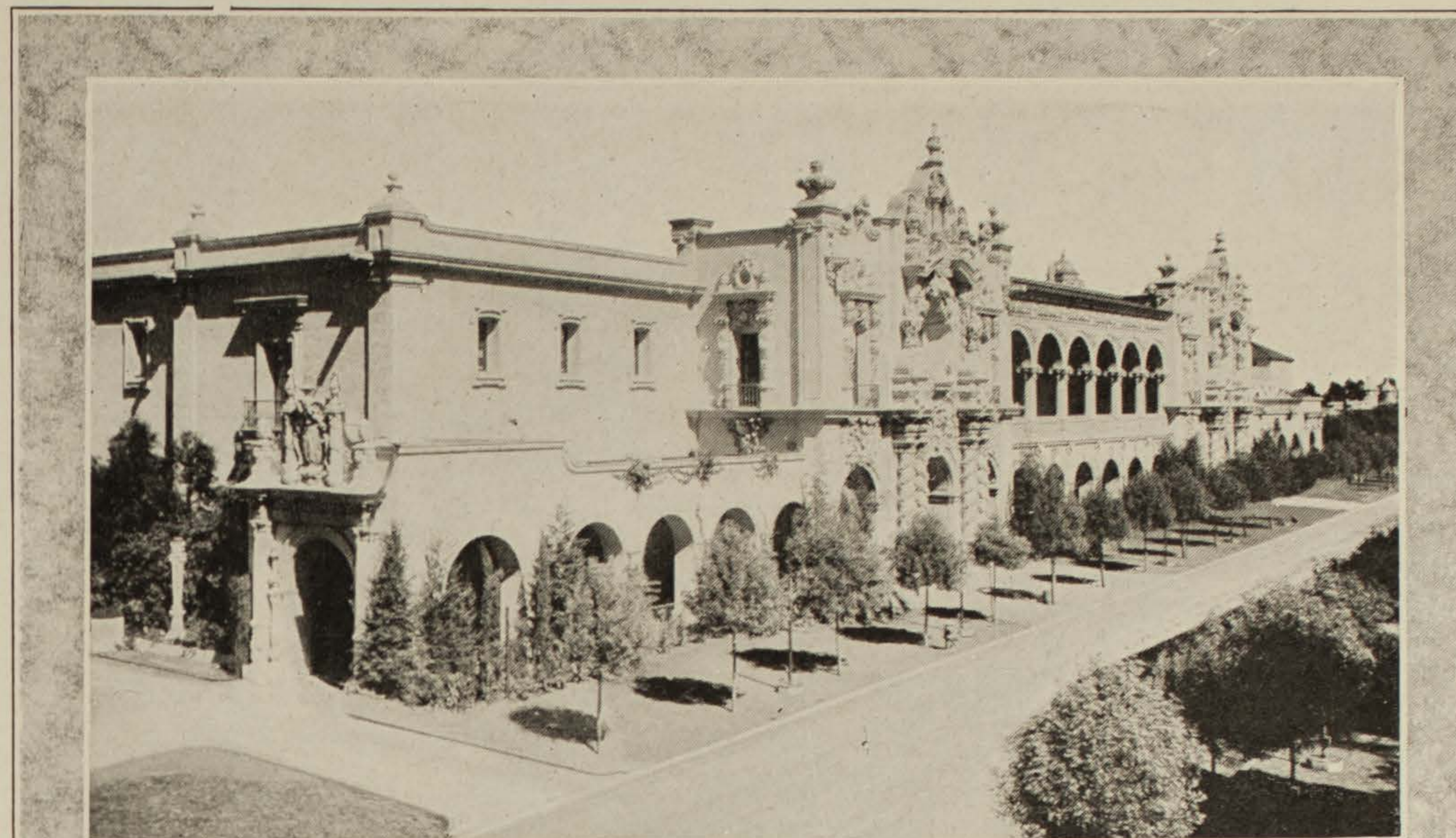




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## THE OFFICIAL GUIDE AND DESCRIPTIVE BOOK

OF THE

## PANAMA-CALIFORNIA INTERNATIONAL EXPOSITION

Giving in detail, location and description of buildings,  
exhibits and concessions, flowers  
and shrubbery

*Edited by Esther Hansen*

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*Panama California International  
 Exposition*

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### 1916

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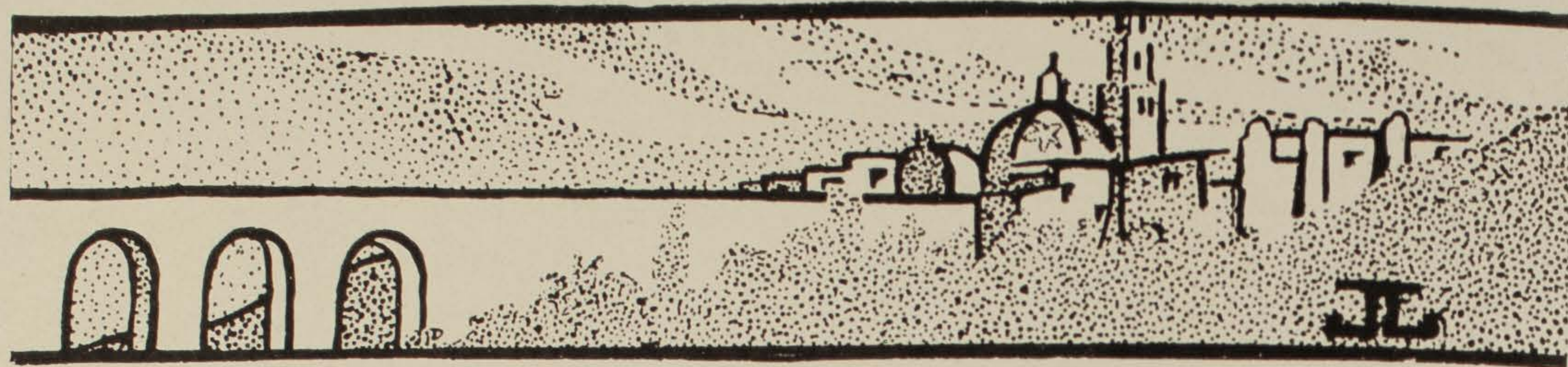
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## A Tour of the Magic City of the Exposition Beautiful



WHILE most automobile passenger business involving the parking of automobiles in the Exposition comes to the north gate (*La Puerta del Norte*), the principal entrances for pedestrian traffic and street car traffic are via the west and east gates. The west approach is by the way of the great *Puente Cabrillo*, a masterpiece of engineering which bridges the *Canon Cabrillo*. This structure is one thousand ten feet long, rising from a pool one hundred thirty-five feet below, and is the first reinforced concrete viaduct of the cantilever unit type which has been built. From the parapets can be obtained a good idea of the extraordinary planting which constitutes one of the most important features of the Exposition Beautiful. At the far side, just beyond the Administration Building, is the great stone gateway which is copied after the portals of numerous cities in Old and New Spain.

### HOW TO SEE THE GROUNDS

*El Prado*, the main street of the Exposition, is a continuation of the *Puente* and leads almost due east through the *Plaza de California*, and into the *Plaza de Panama*; thence, on to the east and to the point where the visitors coming by the east gate must enter.

It is suggested that the first trip through the Exposition be devoted not so much to a visit of the individual buildings and the study of the interesting exhibits, as to a tour which enables the visitor to get a good idea of the broader features of the Exposition and Grounds. Thus, after one is well within the stone gateway, and has noted casually the dominant types of architecture at either side, the cathedral type, as demonstrated in the California State Building to the left and the old Mission type as demonstrated in the Fine Arts Building at the right, the trip should be continued through the opposite arch and for a few feet along the cloister at the south side of the Prado. Here at the right comes a succession of six steps, leading upward and into *Los Jardines de Montezuma* (Garden of Montezuma) which lies between the Fine Arts Building and the Russia and Brazil Building. The garden is surrounded by a great succession of the bronze lamps which form the principal means of illumination throughout the grounds, and is filled with plants grown extensively in the formal gardens of Southern California.

Still bearing to the right, the visitor comes to a gateway partially concealed by the shrubbery, and passes down four steps to a *calçada*, or footh path, which skirts the ridge forming the *Canon Cabrillo*. The *calçada* leads him along the brink and through a curved pergola, whose piers are concealed from the inside by thick eugenia. On the cañon side of the pergola climbs the honeysuckle, and over the other side, the Cecil Brunner rose, almost concealing the rafters of the pergola, where they meet. The *calçada* bears gradually toward the left, still following the edge of the cañon, and leads the visitor along the palm jungle, which fills the tip of the cañon where one gets an excellent view of the lower plateau, and the buildings of various western states. Over beyond the plateau, lie the roofs of the city of San Diego; beyond them, the Harbor of the Sun, with its busy shipping; beyond that, the Strand of Coronado, and on the other side the massive outline of Point Loma, on which bristle the guns of Fort Rosecrans in strong contrast to the peaceful domes of the Theosophical Headquarters, which lie a mile back from the Point. There, too, can be seen clearly the towers of a wireless station which carries messages over the sea to Hawaii, and is the largest of the Government stations. There, too, can be seen the United States coaling station, where every ship of the Pacific fleet stops before it continues its travels across the ocean or down the coast. North Island is visible, and on it the rows of hangars of the army aviation camp. One of the most impressive views in all the grounds is obtained from this *calçada*, between the curved pergola and the palm jungle. The immediate foreground is filled with a gorgeous display of semi-tropical plant life of southern California—palm and acacia, eucalyptus and slim Italian and Monterey cyprus. Over the buildings in the background clamber rose and jasmine and bougainvillea.

### THE PALM JUNGLE (*Canada de las Palmas*)

The *calçada* divides by the palm cañon. The path to the left leads up to the arcade of the Russia and Brazil Building and into the *Plaza de Panama*. The path to the right carries one along the edge of the jungle, past some extraordinary varieties of cactus and up past a building erected by Kern and Tulare Counties, into the *Plaza de Los Estados*, where stands the splendid new \$100,000 out-of-doors pipe organ, given the citizens of San Diego by John D. and Adolph B. Spreckels, whose loyalty to the city has been proved in countless instances.

When the Panama-California International Exposition has closed its gates, when the temporary buildings have been razed, when 1916 will have passed into oblivion, this magnificent testimonial of one man's love for the Sunny Southland will remain a permanent feature of beautiful Balboa park, to be enjoyed in years to come by the residents of and the visitors to the city.

The organ, housed in a sturdy covering of cement, is one of the greatest in the United States and the only one, so far as is known, built for open air recitals. It contains cathedral chimes, concert harp, drums and cymbals, features which are impossible in the largest of auditorium instruments.

Power is furnished by electricity; no air is used. The organ is encased in a frame of steel and the parts have been made interchangeable. Almost any combination can be made by the organist without leaving his seat. There are four manuals, sixty-two speaking stops.



The beautiful temple in which the organ is installed, was designed by Harrison Albright, who drew the plans for several of San Diego's largest and finest buildings, among them the splendid new Spreckels theatre.

John D. and Adolph B. Spreckels are men who never do things by halves. So, after presenting San Diego with the organ and music pavilion, they cast about for an organist to entertain visitors in 1916. They did not want a musician who was merely capable of playing the instrument, they wanted a man who could furnish the best of music.

Dr. Humphrey J. Stewart of San Francisco, one of the best known organists in the United States was selected. During the entire year, 1916, visitors will have the opportunity to hear the best interpretations on the only organ of its kind.

Dr. Stewart is perhaps better known as a composer than as an artist. He was born in England, educated in English schools and later entered Oxford where he graduated with honors. He migrated to San Francisco in 1886 and it was not long before he was firmly launched on a career of music which has made his name known throughout the length and breadth of the land.

The state plateau lies off to the southwest. Almost at the end of the collonade, which leads out from the central part of the organ pavilion, lies the building erected by Alameda county. A little further to the left along *La Via de los Estados*, lies the building erected by the State of Utah, marked by two dominant cupolas and four smaller ones. On down *La Via de los Estados* lie three other interesting State buildings, the first, on the right, that of Washington, on the left is Montana, and furthest, New Mexico. The U. S. Government Building is situated on the Alameda. Further down on the plateau is the big tract given over to the United States Marine Barracks, especially installed for the Exposition. The Barracks are in the command of Maj. M. J. Shaw, but Col. Joseph H. Pendleton of the 4th Regiment United States Marines, has headquarters in the Science and Education building. In the Barracks will be seen the regular life of the United States Marine and the methods whereby the American "soldier and sailor, too", has attained his extraordinary efficiency as demonstrated many times in battle and in peace. Adjoining the marine camp is the potpourri rose garden, where is shown the actual work of building up an American industry which should rival this important industry in Europe.

From this location, near the Marine Camp, one gets an excellent panorama of the Exposition's architecture spread out before him. All that he sees is included in the somewhat general term, the Spanish-Colonial style. Expositions in the past have usually been conceived and worked out after the French manner of plan and style but from the first it was decided that San Diego's Exposition should be expressed in terms which revived the architectual traditions of Southern California and carried one back to the days of conquistadores and the mission fathers. More than that there is interwoven throughout the buildings of the Exposition an historical sequence of architectual styles showing examples of the Mission work in California and Mexico, Central America, Spain and the lands of the Moors.

Although Juan Rodriguez Cabrillo, the discoverer of San Diego,

came in 1542, the settlement of the coast country did not begin until 1769, and in the meanwhile the settlement of the interior had been under way for nearly a century. The Theosophical Building is an excellent example of the California Mission type, and the Russia and Brazil Building, in the Mexican Franciscan style, shows the connection between the California Mission type and the earlier Mexican Churriquesque from which it sprang. The East front of the Science and Education Building is a good example of this latter mentioned type, while the Foreign Arts Building is much more purely Spanish, being designed in the early Spanish Renaissance, sometimes called the Plateresque or the Silver-smith's style because of the flatness and delicacy of its ornament. Special features of the California Mission style are the round arched cloisters and characteristic belfries, exemplified in the arcade of the Fine Arts Building in the California quadrangle and the bell towers of the Russia and Brazil Building where are swung old Mission bells.

The New Mexico Building shows a variant of the Mission work as developed in the New Mexican Missions and is a modified replica of the acient mission on the Rock of Acoma on the old Santa Fe Trail.

Dominating the Exposition and the City of San Diego is the California State Building almost cathedralesque in its composition and beauty with its Churrigueresque frontispiece rivalling the finest in Mexico and Spain, its beautifully carved mahogany doors and ornamental dome and graceful tower or campanielo.

On and near the *Plaza de Panama* are seen other interesting types, some of which are described further on in this guide book. The Kern and Tulare Counties Building is an excellent example of a Spanish urban residence. The San Joaquin Valley Building is a Spanish American municipal structure in the Churrigueresque style. Canadian Building, occupied by the Canadian Exhibit, with colored cornice in Spanish Renaissance and recalls the Casa Consistorial in Palma Majorca, Spain.

The visitor returns from the lower plateau and passes along the east side of the *Plaza de Panama* in the lower corner of which, near the Organ Pavilion stands the building erected by the Union Pacific and Salt Lake Routes. To the north and east of the San Joaquin Building is the Foreign Arts Building, marked by its corner tower which is balanced on the opposite side of the *Prado* by the beautiful tower of the Pan-Pacific Building in the middle period of the Spanish Renaissance style. Through the cool arcade the visitor passes along up the *Prado* to a short colonnade which forms a connecting link with the arcade of the Canadian Building. Turning here to the right he walks down through a beautiful little garden to a balcony overlooking the *Canon Espanol*, the city and the sea beyond. Continuing he passes through arcades to the left, then to the right, thence behind the Canadian Building out upon a broad lawn dotted with eucalyptus and other trees and shrubs. Following the edge of the cañon, he comes along the crest of a low slope and returns to the *Prado* by way of another stone balcony, guarded by giant century plants and commanding another striking and wonderful view of the distant islands and sea.



## THE PEPPER GROVE

Still bearing to the right, he comes to the entrance of the pepper grove, and passing the small field hospital, winds in and out through the soft-drooping pepper trees, extensively grown throughout Southern California, and discovers rare vistas of the distant sea, through the rifts in the trees and back to the buildings of the Exposition Beautiful. Here there are no buildings, but simply a quiet grove where the visitor is compelled to sit down to rest in the soft breeze, and be glad that one can live in Southern California. There are lawns of bluegrass and clover, and of the lippia, more commonly known as the "lazy man's lawn", because the lippia never grows high and never has to be mowed.

There is another patch beneath the pepper trees which is filled with Scotch heather. When evening comes on, the quail come up from the cañon and feed in the fragrant grasses, where by day the peacocks strut haughtily.

Back along the path by which the visitor entered, one continues up to the *Prado* again. Facing him is the Southern California Counties Building, behind which lies one of the most interesting exhibits on the grounds. Turning to the left, the visitor passes between this building and the Foreign and Domestic Industries Building, the largest on the grounds. He passes along the *Calle Cristobal*, perhaps through the formal garden which lies to the rear of the Southern California Counties Building, and into the *Calle Colon*, a short street connecting the Alameda and the Isthmus. Ahead stretches out the great citrus orchard, a masterpiece in the Exposition work, which affords the visitor from the chilly north and east his best opportunity to view the orange and lemon and grapefruit, the kumquat and the tangerine at their very best.

To the right, as one faces this orchard, lies the beginning of the Isthmus, or amusement street, which has succeeded the old time Pike and Midway. To the left extends the Alameda and the exhibits which border it, all of such great importance that the visitor will go not once, but many times.

Beyond the fire station lies the model intensive farm, and next that the great display of the International Harvester Company, the largest which that great concern ever established anywhere.

## THE TEA PLANTATION

On the east side of the Alameda, just beyond the citrus orchard, lies the Lipton Tea Plantation, which is as unique in world's fairs as is the citrus orchard. The tea plants which fill this plantation, are the first considerable number to take root in American soil. They were brought from estates of Sir Thomas Lipton near Colombo, in Ceylon, by one of the head nurserymen in the Lipton service, carried across the Pacific under glass so as to protect them from the dangerous breezes, and finally planted in American soil to supply an adequate test of whether tea culture is possible in this country. There is every indication that the experiment will prove successful, and that the San Diego Exposition will have given to this country a new industry supplanting the annual importation of 90,000,000 pounds of tea from the Orient. The plantation continues under the care of the Singalese.

Just to the north of the Lipton Plantation lies the building of the

U. S. Government with its impressive display of that commonwealth's resources.

Immediately to the north is the Standard Oil Building showing the manner by which crude oil is taken from the ground and refined into oil products which now constitute one of the greatest of the world's industries.

## Out-Door Motor Demonstration Field

Motor transportation will come into its own at the Panama-California International Exposition. There will be no automobile show—that is as automobile shows have been known in the past; there will be no automobile exhibits, as such; there will be no medals or awards; but the automobile will be one of the biggest headlines ever presented at any exposition.

Automobiles, both pleasure and commercial, will provide a series of spectacular special events continuing from the opening day to the last day of the year, 1916. Not only will the general buying public find entertainment and instruction in this innovation, but it will be held under the eyes of the various branches of the United States government service. The U. S. government will have men on the ground during the year to collect data on the efficiency of motors to be used in the aviation service, on cars suitable for the work of the artillery, of machines adapted to scout duty, and for the endless tasks that fall to the caterpillar and tractors as shown in the world's greatest war.

This automobile demonstration giving opportunity to every American car will not have a single "still exhibit".

The motor transportation exhibit spans the Alameda north of the Standard Oil Building. Surrounding the demonstration field of ten acres are the arcades which will house the machines from the weather. A natural ravine stands within the enclosure in which climbing and equilibrium tests will be conducted in a spectacular manner. Tugs of war, head-on collisions, slow races, tire-changing contests, gasoline tests, and every conceivable means of demonstrating the superior qualities of a car will be given.

Among other events will be special periods given to the demonstration of cars within certain price limits. During such a period all cars less than \$750.00 will be entered, another demonstration will be offered by cars from \$600.00 to \$1,200.00, and to a group including the highest priced cars made. There will be roadster days, touring car days, truck days and each will be designated far enough ahead so that the dealer or prospective purchaser can be on hand to witness a demonstration in which he is especially interested.

Special days for certain cars will not be overlooked and at such times, parades and special programs will be offered, giving full sway to one make of car.

Blythe H. Henderson, Chief of Transportation at the San Francisco Exposition, is in charge of this new idea in automobile display, and W. E. Benton, who had charge of the automobile exhibits installation at San Francisco, is Henderson's assistant chief.



The automobilist and the auto tourist who visits the Panama-California International Exposition during the present year will have good reason to believe that this Exposition was built for their special entertainment.

Instead of barring the automobile from the Exposition grounds, they will be admitted at all times and at the nominal charge of twenty-five cents. This charge also includes the right to park a machine twenty-four hours on the automobile field. Every traveler who comes to the Exposition by automobile, and who drives more than 500 miles will receive special recognition and will be given a special Exposition button to mark his achievement.

#### THE MODEL INTENSIVE FARM

The western development army will be made up not so much of farmers and farmers' sons as of city men who wish to go back to the land. Many of those city men are not equipped physically or financially for the cultivating of a great tract of land of the sort for which this heavy type machinery is most economical. These city men would be unable to buy greater than a few acres of land. Let them go back down the Alameda to the model intensive farm, and they will see a five-acre tract of land producing as much as four or five times that tract of land can possibly produce under the old style methods. They will see that irrigation and intensive cultivation have revolutionized small scale farming. They will see five acres dotted with peach and apricot and pear and date and walnut trees, and beneath these trees they will see a thousand rows of vegetables, some northern, some semi-tropical, but all growing in riotous profusion under the scientific methods of the model western farm. It will be seen that a thousand farms of this sort up and down the California coast are supplying the question of a good living and a good annual surplus—a better living than was ever enjoyed in the city. And while the prospective farmer is discovering how modern machinery has cut down his work, so the wife of this prospective farmer will discover, by a visit to the model bungalow at the center of the model intensive farm, that modern machinery has cut down the drudgery which her grandmother had to bear. She will discover that the comforts of the city apartment have simply been transferred to the farm, and that it is perfectly feasible to have the vacuum cleaner and the automatic pump, and the other necessities which would have caused the old time farmer's wife to live a longer and happier life than was her lot.

This is, perhaps, the most important single teaching of the whole agricultural show, and it augurs well for the back-to-the-land movement. This, too, is a good demonstration of the striking feature of the San Diego Exposition, which has cast off the clothes of the old time world's fairs, and instead of showing merely the products which the old time fair showed, and which were discernible every day in every city of the country, shows the processes by which these products are made.

#### THE LESSON TO THE CITY MAN

Every man has a definite idea about living in the country. He most longs for a place where his health would be better, and his savings larger and his children would be sturdier and better able to carry on his name, but when the average American thinks of going back to the land, he

recollects his days or his father's days on the old-time farm. He remembers the unfailing program of rising before the sunrise, and working, as few draft animals could be expected to work, until long after sunset, and then going to bed too tired to rest but with another hard day before him. He remembers the distress of the farmer whose labors were rewarded only by clipping a little bit from the mortgage which hung over his head constantly. He remembers the old-time farmer's terror of the rain which might come on the following day. His whole recollections of farm life are far from pleasant.

And now San Diego shows that the old-time farm life is gone. The Exposition demonstrates that machinery has removed the drudgery which existed a few decades ago. It demonstrates why the progressive farmers of today are able to make gasoline do most of their work and allow them a season of real prosperity—1914 was the best year in the history of the American farm—and then have several months of the year for travel and recreation.

#### INTERNATIONAL HARVESTER COMPANY

It was this idea which convinced the International Harvester Company that it should make the largest display that it has ever made anywhere. It was this idea which convinced Sir Thomas Lipton that he should make the only exhibit of the sort that he has ever made. It was this idea that decided manufacturers from every section of the country to enter enthusiastically into the program of the San Diego Exposition, and participate in what is, not the largest world's fair ever held, but the most interesting, as well as the most beautiful.

The harvester exhibit is well worthy of careful examination. In the rear of the beautiful building lies the orchard which the harvester company itself laid out in order that there might be demonstrated the most improved machinery for orchard cultivation. This machinery is shown in operation. Back of the orchard, overhanging the *Canon Cabrillo*, is the open field where the grain and grass machinery is being operated. The company is showing the tools wherewith the desert is rapidly being changed into fruitful gardens.

The southwestern territory contains fifty-two million acres of arable land, only eight million of which are being cultivated today, and while these eight millions are producing \$150,000,000 in farm revenue each year, there is a demonstration of the mighty additional revenue which should come from the area, more than five times as great, which today is producing absolutely nothing.

#### AUTOMOBILE PARKING

Automobiles are admitted to the grounds in the day time through the north gate only. Admission price is 25 cents. Parking is free on the parking grounds flanking the Alameda near the Motor Demonstration Building.

The same conditions apply in the evening, except that admission is by any gate.

#### WHAT THE ISTHMUS CONTAINS

Notable among the many attractions on the Isthmus is the Painted Desert of the Santa Fe, far and away the most impressive display of real southwestern Indian life that the world has ever seen. Within a few



acres have been gathered exhibits of actual living conditions among the Pueblo Indians and the nomadic tribes alike. In the eastern half of the desert is shown the life of the Pueblos, the Taos, Hopis, Zunis and the many tribes along the Rio Grande. The great adobe structures were built by the Indians themselves, brought over to San Diego from Arizona and New Mexico for that purpose alone. The red men will be seen weaving their rugs and blankets and shaping their pottery, and pounding out their copper and silver ornaments exactly as the southwestern Indians have done for centuries. They will be seen building new adobe houses; they will be shown in their ancient ceremonials in their kivas, or ritual places, half buried in the sands of the desert. They will be seen at their outdoor bake ovens and by the corrals where the grazing animals are kept. They will be seen bringing their wares into the trading post, and exchanging them for food and white man's clothing.

On the west side of the mesa which bisects the desert will be demonstrated the life of the Navajos, dwelling in their hogans, and, like their Pueblo brothers, performing their ceremonials in their sacred ritual places. High up in the great red sandstone cliff will be seen the Cliff Dwellers, descendants of the prehistoric races which were forced to seek shelter in the inaccessible cliffs of the enduring hills. Throughout the desert, which is surrounded by the adobe wall and set thick with cactus and pinon wood, brought over from the real Painted Desert of Arizona, will be interesting relics of the earlier Indians of the Southwest.

#### THE ISTHMUS ZOO

Directly opposite the Painted Desert on the Isthmus will be found the wild animal zoo. This attraction, which is free and open to the public is contained in a line of cages flanking the Isthmus for a distance of 320 feet, and it has proven a never-failing source of delight and interest, not only to the children but to the grown-ups. Lions, tigers, leopards, monkeys, birds, and the entire variety of wild animals seen in a circus and zoological gardens are to be found here.

#### PANAMA CANAL IN MINIATURE

A little way down the Isthmus lies the Panama Canal Extravaganza, wherein is shown the only actual working model of the greatest waterway in all history, the greatest engineering feat whose opening is celebrated by this Exposition. Only a small number of the American people will have an opportunity to see the real canal. This Extravaganza offers them an admirable opportunity of studying carefully the exact manner of its operation. Everything has been constructed to scale, and is as accurate as human hands can make it. The concession includes also a typical street in old Panama, showing the conditions as the American engineers found them when they started this tremendous work, which had been the dream of the Spaniard and Frenchman and Saxon for centuries. While ships are shown passing through the model of the canal, a lecturer explains the points of vital interest along the way and some of the difficulties which the engineers had to cope with, and which they overcame.

Far down the Isthmus, facing the *Calle Colon*, stands another of the highly important concessions, entitled "The War of the Worlds". Here is an imaginative portrayal of possible war conditions of the year 2000, as foreseen by a mechanical expert who has followed closely the progress

in the construction of battleships for the sea and the air alike. It presupposes the existence of interplanetary communication within the next few decades. It marks the climax in the development of panoramic extravaganza and mechanical ingenuity, as displayed in this field.

The other wonders of this greatest of amusement streets should be seen to be understood, just as these three dominant features must be seen to be full appreciated. To each is given the complete indorsement of the Exposition management, which has seen to it that there are no objectionable features any place on the Isthmus or elsewhere on the grounds. Even the eating houses are under the control of the Exposition and a bond is deposited against overcharges. All cases of violation of this agreement or of the rules of ordinary courtesy should be reported immediately to the Information Bureau.

The police station is situated at the foot of the Isthmus. One proceeds along the *Calle Colon* and enters the shaded lane between the Foreign Domestic Industries Building and the Cafe Cristobal, the largest of the restaurants on the grounds. This lane leads indirectly into the gardens of Japan and Formosa with the pavilion in the center.

#### JAPAN VISITS THE OCCIDENT

Particular attention is directed to the array of Japanese floral life, filling these gardens and surrounding the pool which is crossed by the folo bridge, (bridge of long life). The Japanese idea is that he who is able to cross the folo bridge without slipping on its shapely-curved surface is assured of long life. Similarly, the shachi fish which forms one of the ornaments of the roof is a symbol of good luck as the fabulous shachi fish was supposed to devour all devils. The folo bird over the main entrance is a symbol of immortality. The Japanese gardens join with the beautiful botanical gardens at the center of which is one of the largest lath houses in the world, filled with a triumphant array of the rarest tropical plants. There is a checking room in the pavilion, and free tables are supplied those visitors who bring light luncheons to the grounds. Tea is also served by little Japanese waitresses for a nominal sum.

The surrounding gardens constitute one of the beauty spots of the Exposition Beautiful. The adjoining buildings are reflected in the *La Laguna de las Flores* (pool of flowers) and in the lagunita which lies between this large pool and the Botanical Building itself.

#### BOTANICAL GARDENS

Looking over the gardens is the bust of Fray Junipero Serra, the presidente general of the Spanish padres and the most important figure in the building up of the great chain of missions along *El Camino Real*, which stretches from the first mission, San Diego de Alcala, to the mission of San Francisco de Solano. This bust forms a part of the tablet on the west side of the Foreign and Domestic Industries Building, almost at the end of the Botanical Building.

One may walk around to the back of the Botanical Building and along the path overhanging the cañon, back of the main structure, and into *Los Jardines del Eucalyptus* (gardens of the Eucalypti) which is back of the California State Building, or he can return to the *Prado* and walk along the front of the Pan Pacific Building into the *Plaza de Panama*. At the north end of the plaza stands the great building of the U. S.



Government; before it, the canopy beneath which the Spanish band plays. Across the plaza at the northwest corner stands the Science and Education Building, at the nearest corner of which is one of the quaint patios which stand as various places about the grounds. The patio was the quiet garden of the Spanish residence and was transplanted to the Spanish mission as well. This particular little green spot has a small fountain of Pan, and the familiar vine framed and rug draped balcony, in which the senorita of the days of romance used to hold her siesta while in the garden below, the caballero sang.

Down the arcade a little distance, by the main entrance of the Science and Education Building, is another patio with two more fountains of Pan, and an interesting display of palm and bamboo. Months would not suffice to learn the full array of flora of Southern California. It might be mentioned that the eucalyptus family has some two hundred varieties, many of which are present in the Exposition grounds, and the acacia nearly as many.

In the arcade connecting the Science and Education Building with the California Building, just as one is about to enter the *Plaza de Panama*, is another gateway leading to the right and opening into *Los Jardines de Eucalyptus*, the open space which overhangs the *Canon Cabrillo*.

#### OTHER SUGGESTED ROUTES

This constitutes perhaps the best tour of the grounds. If one enters by the east gate, it is advisable to start his tour of the grounds as indicated on page 8, after leaving the pepper grove. When he has reached the *Plaza de California*, as indicated in the last preceding paragraph, he might follow the route as outlined beginning on page 4, through the pepper grove, thus completing the tour.

If he enters by way of the north gate, he might take up the trip leading down the Isthmus as indicated on page 11, and after leaving the *Plaza de California* follow the trip as outlined, from the west gate, indicated on page 4.

#### CALIFORNIA QUADRANGLE

The California Quadrangle comprises the buildings surrounding the *Plaza de California*, a paved square which is entered from the west by way of the Ocean Gate and from the east by way of the Prado Gate. In its architecture it furnished the key note of the Exposition. The architect was Mr. Bertram G. Goodhue of New York, and it was constructed under the personal supervision of Mr. Carleton M. Winslow of San Diego. It comprises on the north side, the California State Building; on the south side, the Fine Arts Building.

#### CALIFORNIA BUILDING—FRENCH EXHIBIT

The French government exhibit is installed in the California Building. This display is valued at more than a million dollars and was brought by special insured express from the San Francisco Exposition, where it was on exhibition in the Palais de Legion d'Honneur, and was visited by practically all of the nineteen million who were present at the Panama Pacific International Exposition.

The Luxembourg Art Collection, combining more than sixty famous paintings, is shown in the Art Gallery of the California Building, but this will leave April 1.

In the French Government display are interesting historical relics, including original manuscripts of Napoleon, Dumas, Hugo, Marcus d'Lafayette, and Field Marshal Rochambeau.

One Hundred Thousand Dollar tapestries and valuable art railings appeal to all.

In the vestibule of the California State Building, forming a part of the permanent decoration, are the following works of art relating to Ancient America:

#### *Works of Art Relating to Ancient America*

in the  
CALIFORNIA BUILDING

##### I. VESTIBULE.

HISTORICAL FRIEZE, "DISCOVERY AND CONQUEST OF AMERICA", MRS. SALLIE JAMES FARNHAM, SCULPTOR.

1. Discovery of America by Columbus.
2. Discovery of Pacific Ocean by Balboa.
3. Conquest of Mexico by Cortez.
4. Conquest of Peru by Pizarro.

BAS-RELIEF SCULPTURES FROM ANCIENT MAYA CITY OF PALENQUE, MEXICO:

5. The Magician: Pier Tablet from the Temple of the Sun.
6. The Priest: Pier Tablet from the Temple of the Sun.
7. Altar Piece from the Temple of the Cross.
8. Altar Piece from the Temple of the Sun.
9. Hieroglyphic Tablet from the Temple of Inscriptions.
10. Hieroglyphic Tablet from the Temple of Inscriptions.

INSCRIPTION OVER DOORWAY:

11. Date of California Building (January First, 1915, A. D.) in Maya Hieroglyphic Characters.

#### WOMEN'S HEADQUARTERS

The entrance to the Women's Headquarters is at the head of the stairway in the southwest corner balcony. All Exposition visitors are welcome and none should fail to visit these rooms. They consist of the Hostess' Gallery, the Bridge, the Corridor, the Blue Tea Room and the Roof Balcony. They constitute the social center of the Exposition, and in appointment, in purpose and in spirit reflect the inner life of the Exposition, which it is hoped all will discover and enjoy. The paintings in the Women's Headquarters are the work of the late Donald Beauregard, and are loaned by Mr. Frank Springer of New Mexico. The Women's Board maintains a Women's Rest Room on the chapel floor of the Fine Arts Building and a Babies' Room on the balcony of the Science and Education Building.

#### FINE ARTS BUILDING

The Luxembourg Art Collection, which is on exhibition in the Fine Arts Building, will remain until April 1, when it will be sent to Pittsburgh and from there back to France.

This collection of sixty paintings is valued at approximately one million dollars and all of the paintings were done in the period between



1870 and 1910. The war pictures in the collection are especially interesting at this time, as they show the strife between Germany and France in a remarkably realistic manner.

At the outset of the war, the uniforms of the French and German soldiers were the same as those depicted in the paintings which were to present the conflicts of the Franco-Prussian War. "The Dream", "The Cemetery of Saint-Privot" and "Rezonville", are among the interesting war paintings. All of these pictures cover France as it really exists, and in addition to being wonderful works of art, it is in a sense a history of France in oil.

Attention is directed to the remarkable hall just within the west entrance of the Fine Arts Building, especially to the woodwork of the ceiling from which hangs a great bronze lamp. The visitor who passes through this hall finds himself in the balcony of the little Franciscan chapel completely installed in close imitation of the characteristic chapels established by the Franciscan friars in the early days of California history. The rough-hewn beams of the ceiling, the uneven window edges and the rough tile floor are particularly characteristic.

On the lower floor of this building, below the level of the Plaza, is the collection contributed by the Pioneer Society, containing a number of pictures and relics decidedly interesting to those who are concerned with the early days of historic San Diego.

#### RUSSIA AND BRAZIL

On the west side of the Plaza is the structure devoted to the displays of Russia and Brazil. Besides the products and manufactures of these nations, their exhibits are particularly noteworthy for the metal and craft work. These displays, in their entirety were brought from the Panama Pacific International Exposition at San Francisco, where they were the center of interest for thousands of tourists and visitors.

#### SCIENCE AND EDUCATION BUILDING

The exhibits in this building, except those in the central hall, were purchased by the Panama-California Exposition, 1915, and installed under the direction of the School of American Archaeology. They are administered by the San Diego Museum, in trust for the City of San Diego, as a nucleus of a permanent Museum.

The entrance to the Science of Man exhibit is from the Plaza. This remarkable exhibit shows: (1) the study of man's natural history; (2) the study of man's growth and development; (3) man's varieties or races; and (4) a comparative study of man's pathology, both in time and geography. The room adjoining the *Prado* contains life-sized groups of Indians demonstrating their arts and crafts.

The central room, installed by the Smithsonian Institute and National Museum, is known as the Hall of Ethnology and contains models and specimens illustrating the family life and village life, and arts and industries of various races of mankind; notably the Western Esquimaux of Alaska, the Zulus of South America, the Dyaks of the interior of Borneo, and the Caribs of the far interior of British Guiana, which are portrayed in large groups consisting of life-sized figures showing their domestic life.

The West room, or Archaeological Hall, contains an excellent collection of canvasses by Gerald Cassidy, portraying scenes pertaining to the Archaeology of the southwest; the best collection of pre-historic Indian pottery extant, of over 5000 pieces; and much valuable ethnological material. The balcony leading from this room is devoted to the valuable Joseph Jessop loan exhibit of bows and arrows, gathered from all parts of the world. Admission to this special exhibit is had by applying to the Curator in charge.

The Curators in charge of this building will be very glad to explain the exhibits to those who are especially interested.

#### MARINE HEADQUARTERS

On the second floor of the Science and Education Building, facing the Plaza, are the headquarters of Col. J. H. Pendleton of the Fourth Regiment, U. S. Marines, one battalion of which is in charge of Major M. J. Shaw and is encamped on the lower plateau and furnishes a genuine education in matters pertaining to marine work.

#### THE PAN-PACIFIC BUILDING

In the Pan-Pacific Building are shown the displays of many nations and commonwealths bordering on the Pacific Ocean. There are displays of Hawaii, Phillipine Islands, New Zealand, Australia, Alaska, and several others, shown in an attractive manner.

The Arizonian Exhibit is also housed in this building.

#### FOREIGN ARTS BUILDING

This building houses the displays brought here from the Exposition at San Francisco, of Germany, Italy, Spain, Greece, India, Persia, Turkey, Egypt, and Japan.

Where it has been impossible to display these exhibits as a whole, a process of selection was resorted to, resulting in the display here such as never has been brought together in any one spot in the world previously. The exhibits cover a wide range from the products and manufactures of Japan to the arts and crafts of Germany.

#### CANADIAN BUILDING

The Canadian Building houses the wonderful display of the Canadian government, considered to be, at the San Francisco Exposition, the most wonderful exhibit ever offered by any government at any Exposition.

The various industries of Canada are shown in striking panorama. Railroads and Steamship lines are shown in operation, the wild life of the country is depicted in striking scenes using hundreds of animals prepared by the taxidermist, and live beavers present one of the most interesting features, while building a beaver dam wholly of their own construction.

#### FOREIGN AND DOMESTIC INDUSTRIES BLDG.

Here are shown the displays of Holland, which includes the old Dutch ware and antique ware brought from Holland, the products and manufactures of Switzerland and the products of the Central American States, together with various exhibits of manufactures and industries from the United States and different parts of the world.



## FORESTRY EXHIBIT

The United States government's forestry exhibit at the Exposition is located in the U. S. Government Building on *Plaza de Panama*. This is singularly appropriate, because the San Diego Exposition is devoted particularly to the West, and New Mexico is one of the western states in which the forestry service is doing some of its most important work.

Forests, waters, minerals and live stock ranges are the great resources of Mexico. The rivers depend in large measure upon the forest to protect the watersheds which feed them and to act as reservoirs for impounding their excessive flow against periods of drought. The efficiency of the ranges is closely related to the work of the National Forests. The forest resources of the state, their relation to the resources of water and range, and the work being done on the National Forests to insure protection and wisest use of their resources from the Forest Service display, which is under the direction of Don Carlos Ellis, of the Federal Forest Service.

Protection of the forests from fire is a most important work of the Forest Service and so is given great prominence in the exhibit. In the exhibit hall, is a full size platform of one of the types of fire lookout towers used in the National Forests. Fire fighting equipment also is shown in the exhibit.

The close connection between forests and stream flow and surface formation is graphically shown by a working model on which falls water in the form of rain. The model has two slopes, one forested, the other bare. The water falling on the forested slope is absorbed by the protected and porous soil and seeps out later perfectly clear. No soil erosion occurs. On the bare slope, the water rushes off the hardened surface immediately, cutting away the soil as it goes and depositing the silt in the channel of the river, in the reservoir below, and upon the farm land in time of flood.

The whole story of National Forest activities, the mountainous, non-agricultural character of the land and how the forests are used by the people, is told by the model of an idealized National Forest. Upon this model, are grouped examples showing the more important kinds of work carried on by forest officers and the many ways in which the forests are used by the public.

## ARMY AND NAVY

Of surpassing interest is the exhibit of the U. S. Government Army and Navy Departments. Herein is displayed the military and naval equipment employed by the United States forces from the earliest time to the present day. This display is supplemented with exhibits from the Army and Navy headquarters in Washington, consisting of charts, models, etc. It is second to none in point of instructive interest.

## U. S. GOVERNMENT AGRICULTURAL BLDG.

This building stands on the Alameda, facing west, just south of the Standard Oil Building, and the Motor Demonstration exhibit. The entire structure is devoted to the display of the U. S. Government agricultural and horticultural departments and is of surpassing interest to both young and old. In addition to the above mentioned exhibits, the government has here installed a pure food exhibit under the direction of the government experts.

## THEOSOPHICAL BUILDING

At the entrance of the lower plateau stands the building devoted to the display of the International Theosophical Brotherhood, the headquarters of which is at Point Loma.

## STATES AND COUNTIES

With the main exhibits of the Exposition devoted largely to the effort to show to the visitor from other parts of the country and other parts of the world the opportunities awaiting the traveler and settler in the American West, the leading states of the west have erected imposing buildings to emphasize the lessons taught in its general features. It is their task to show what each individual state has to offer. Most of these buildings are located on the lower plateau and are almost the first sights to strike the eye of the visitor, whether he comes across *El Puente Cabello* or up along *El Paseo* to the east gate. One of the states has placed its building elsewhere—California, whose imposing \$250,000 building stands close to the west approach, its great tower and dome dominating the architectural scheme of the whole grounds.

The California Building, however, is not devoted to a display of the state's resources as is the case with the other states. This work has been left to the fine buildings erected by individual groups of counties, and the California Building houses the French exhibit.

The middle portion of the state is cared for by the San Joaquin Valley Counties Association, whose building on the east side at the lower end of the Plaza is probably the best on the grounds of the municipal building type which is seen frequently in Spanish America. The San Joaquin Valley has devised an extraordinary mural decoration scheme. The large staff of workers, both men and girls from the Valley, have arranged unique designs in grains and grasses which cover the panels all over the walls and ceilings of the building. There are, of course, some excellent colored photographs on a large scale which set forth the various industries of particular prominence in the San Joaquin Valley.

The third large group of counties comprising the southern section of the state has erected an imposing building, the Southern California Counties Building, near the east gate, and back of that building has laid out one of the most impressive displays on the grounds. The building itself opens into the formal garden through which one walks to the citrus orchard on the other side of *Calle Colon*. Here in this orchard are the many varieties of citrus fruit; the orange, lemon, grapefruit, kumquat, tangerine, and a row of trees certain to excite great curiosity inasmuch as grafted in their trunks are numerous varieties of citrus fruit, each of these varieties growing well under conditions which are almost incomprehensible to the visitor from northern climes.

All visitors to the Exposition during the year 1916 should not fail to visit the Fine Art exhibition in the Southern California Counties Building. This exhibition is comprised of about seventy canvasses, the work of artists now living in Southern California, and therefore truly representative of Californian art. The gallery is located on the second floor of the Southern California Counties Building.

Across the Alameda from the citrus orchard is the model intensive farm, wherein is the attempt to show that the settler in the west does not



need a great amount of land, and that on a small tract of five acres or even less can make a good living for himself and family and provide for an annual surplus. Not content with showing the wonders of intensive agriculture, the Southern California Counties have built in the center of the model farm a model bungalow, equipped with every convenience to make the settler less likely to miss the convenience of his city apartment. In this farm, by the way, are shown many of the fruits of California other than citrus fruits. These include the peach, apricot, the fig, olive, apple, cherry and alligator pear and a few walnut trees. Here too, is the vineyard.

There are two smaller groups of counties presented; Kern and Tulare, whose graceful building lies across the *Esplanade* from the San Joaquin Valley Building, close by the entrance to *La Via de los Estados*; and Alameda, whose building is directly across this highway leading to the state plateau. Here, too, are shown the resources which these sections have to offer the man who wishes to live in California. The visitor will realize, after a tour of the buildings, the extraordinary resources of the Golden State, whose industries are almost as numerous as the industries of the entire United States.

There at the entrance of the lower plateau begins the succession of state buildings. First, the large building erected by the state of Utah, surmounted by two large cupolas in red tile and four smaller pinnacles grouped about them at the corners. Beyond the Utah Building, which is in charge of Gilbert W. Williams, is the structure erected by the state of Montana, assisted materially by the generosity of former Senator William A. Clark, whose personal gift of \$10,000 made it possible for the state to devote its appropriation to the installation of an exhibit which should set forth in a fair measure the opportunities offered by Montana.

Directly across the way is the building erected by the state of Washington, so constructed that the rear balcony overhangs the small cañon which leads out from the *Canon Cabrillo*. Special stress has been made on its forestry, fruit and fisheries features.

The last of this row of buildings is that erected by the state of New Mexico in replica of the ancient mission on the Rock of Acoma. Even before one gets within the building and sees the exhibit which New Mexico has made, he is impressed by the quaintness of the exterior which shows the manner in which the Spanish settler utilized Indian ideas and Indian materials of building. For example, there are no rounded arches such as came into California at a later period. The lines are generally straight, though the towers and walls are thicker at the bottom than at the top, this being due to difficulties in building with adobe which the Indians used.

The resources which these western states present to the world are almost unlimited. The prime object of the San Diego Exposition was not to help the City of San Diego by direct methods as had been the case with previous world's fairs, but first to the interest of the western states on whose good feeling San Diego is of course dependent for future prosperity. Before the cities and manufacturing industries of the western states can reach their full growth, it will be necessary for the agricultural industries of the states to be fully developed. Hence, the emphasis on

agriculture throughout the Exposition; hence, the effort on the part of the states to show what they are doing in agriculture and what they are still able to do as soon as the vast acres of undeveloped land are finally thrown open to the settler and cultivation started.

The other natural resources are displayed in fullest measure. Mention has been made of the forestry exhibits. It should also be made of the mineral exhibits, not only of precious metals but of the baser metals which are of just as great industrial value. There is a display of coking and coal resources which will become necessary in the days when the great industries spring into better development. There is plenty of iron in the mountains, but its fullest value will be found only when there is developed plenty of coal for the treatment of the iron, its conversion into steel and the manufacture of structural shapes.

The displays of irrigation projects to open up the agricultural lands, important as they are, are probably no more important than the displays of mining opportunities such as make possible a yearly output of something over \$125,000,000, nearly as much as the agricultural output. The west is barely tapped today, and its mineral wealth will continue to produce for many years to come. The agricultural wealth, of course, is inexhaustible. The forests of the west will continue to produce lumber for the world just as long as the present scientific methods continue, and there is every indication that these methods are the wisest. There are great reserves which ultimately will be opened, and when they are opened, the west will witness the wisdom of the policy which conserved them so long.

There are also unlimited resources of scenery. There is not a state exhibiting which has not some mighty display of mountain or valley, lake, sea or desert, or forest to show to the wondering world. The effort on the part of the Exposition is to make certain that every visitor who comes shall spend a great amount of time visiting these different states after he has visited their buildings and seen what the states have to offer. It is an Exposition which is genuine, whose effort is an earnest effort to help the country in which it is situated, the American West, the Empire of Tomorrow.



## Special Events

The daily special events held upon the Exposition grounds are planned to attract and amuse all classes of visitors. The daily program will keep the visitor informed of the nature of these events, which include automobile races, pageantry, dramatic productions, aeroplane model racing, outdoor dancing, joy carnivals on the Isthmus, band concerts and an infinite variety of attractions. In addition Special Days



will be held in honor of the different foreign nations represented on the grounds and of the various states of the Union, when appropriate programs and ceremonies will be held.

#### TRANSPORTATION SERVICE

All transportation within the grounds except pedestrian will be by way of the Electriquettes and Motor Trains. The Exposition has abandoned the old time push chair with its attendant discomforts, and has substituted a motor driven vehicle which is absolutely safe and can be operated with ease without previous practice. The Electriquette rents for \$1.00 an hour and carries two persons. It proceeds at an easy walking gait, and will be found extremely valuable for those who are unable to walk over the entire grounds.

The central station is situated on the west side of the Isthmus 100 yards north of the *Calle Colon*. There are sub-stations as indicated by crosses on the accompanying map.

Transportation to the grounds from the downtown section is possible by street car over the No. 1 route (5th street to Laurel Street entrance, thence two blocks to the gate), and by the No. 7 car route (B Street to 12th and thence through the lower end of Balboa Park along *El Paseo*.)

#### SPECIAL INFORMATION

Police Headquarters is located on the Isthmus, South of the War of the Worlds. The entire service of police protection is in the hands of Capt. Chas. P. Wright, Assistant Chief of Police of the City of San Diego, which covers Detectives, Uniform Guards, Gatemen and Watchmen. This service is complete in every detail, even to Hospital and Patrol Ambulance. Guard Headquarters is connected with fifty police telephones, located at various parts of the grounds. Every precaution known to modern police methods is taken to safe-guard the visiting public.

The Information Bureau is in the Foreign and Domestic Industries Building, and is equipped with capable attendants who can give all necessary information. The telegraph offices are located here. Telephone booths are located in each building, the exact location of the booths being found by reference to the individual building maps.

The main checking station with its safety locker system adjoins the police station at the foot of the *Calle Colon* and the Isthmus. Other checking stations are located in each building, the exact location of them being found by reference to the accompanying ground plans of the individual buildings.

Rest rooms are located in most of the buildings. The largest one for women is that operated by the Y. W. C. A. in the Foreign and Domestic Industries Building.

#### RESTAURANTS

The largest restaurant is the Cafe Cristobal on the Alameda facing the *Calle Colon*. In the open loggia of the Foreign and Domestic Industries Building is a restaurant and rest room operated by the Young Women's Christian Association. On the Isthmus will be found a variety of cafeterias and lunch rooms and ice cream gardens. At other places on the grounds and in the exhibit buildings will be found tea rooms and stands where light lunches are served.

#### ADMISSION

Until 6 p. m. the price of admission will be 50 cents for adults and 25 cents for children under 12 years of age. At 6 p. m., when the main buildings become closed to the public, the general admittance fee becomes 25 cents for adults and 10 cents for children under 12 years of age, the same rates prevailing on Sunday. In all cases children under six are admitted free of charge.

#### PRESS BUREAU

The bureau for furnishing complete information to newspaper men from other sections is situated in the Administration Building. This is in close touch with the telegraph offices and the Division of Publicity of the Exposition.

## Horticulture

Only in San Diego, where the wonderful climate of Southern California reaches perfection, could exist out-of-doors the remarkable variety of plant life found at the Exposition Beautiful. From the height of the mesa on which the Exposition buildings stand to the depth of the deepest cañon, the ground is covered with a thick growth of foliage, from the tropical palm to the hardy pine, from the bright-blooming flowers of the equator to the sturdy plants which thrive in the country of snow and ice.

As the visitor approaches the Exposition grounds over the *Puente Cabrillo*, he can look down into the cañon 135 feet below and see spreading bushes and lofty trees, through the foliage of which peer the crimson poinsettia, the tecoma, and the glorious gold of the California poppy. Southward over the parapet of the bridge and down the winding walls of the cañon, lie San Diego and the Harbor of the Sun. Northward, across fertile valleys, are the snow-topped mountains. Everywhere, is the thick foliage.

Along the border of the bridge, are groves of Italian and Monterey cypress, beyond which is a patch of acacia of different species. Further still, are some of the 200 species of eucalyptus, the red gum and the blue gum, and the ficifolia with its flash of crimson.

Of course, there are the palms, from the thick bodied phoenix to the stately tall ones of the cocos plumosa type. Scattered everywhere are innumerable kinds of bright colored flowers, their brilliant shadings flashing through the green of the heavier growths.

As the visitor enters the great gateway and passes through the *Plaza de California* onto the *Prado*, another array of beautiful foliage presents itself. A double row of black acacia trees standing upon thick lawns border the *Prado*, along which stretches a hedge of coprosma, its shining green leaves flecked with the bright red of the poinsettia. Clambering over the arches of the arcades and ascending to the cornices of the Exposition buildings, rises the bougainvillea thick with little red blossoms.



Other reds, among them the canna and the gladiolus, complete the picture until *Plaza de Panama* is reached. Here the red is lost and the glorious purple of another species of bougainvillea commands the eye. Lawns still surround the asphalted pavements; and in the great open space at the lower end of the Plaza, lies a floral rug upon which, at various seasons of the year, new blossoms appear in quick succession. Winding from the Plaza along the edge of *La Canada de las Palmas* and *Los Jardines de Montezuma*, is a quiet *calçada*.

Leaving the *Plaza de Panama*, the visitor turns southward along *La Via de los Estados*, along which are more shrubs and flowers, especially the cherokee rose and the tecoma. Above the edge of the cañon on the right, climb the giant nasturtium and the geranium. After following the circle of *La Via* past the Marine Camp, one returns again to the *Plaza de Panama* and continues further along the *Prado* between other masses of the brick-red bougainvillea.

Just beyond the Pan Pacific Building to the north of the *Prado*, lie *La Laguna* and the Botanical Building, where is found the most remarkable floral work on the Exposition grounds and one of the most extraordinary collections in the world. About *La Laguna*, stand araucaria, black acacia, eucalyptus, grevillea, and camphor trees, all of which, together with the surrounding buildings, are beautifully reflected in the mirrored pool.

Within the Botanical Building, which is one of the largest lath-covered structures in existence, is a rare collection of tropical and semi-tropical plants. Growing in thick profusion, are the palm and bamboo, varieties of banana trees, the aralia, and many other plants found in Central and South American jungles. In the glass covered conservatory, above an open pool filled with lilies, drops from the ceiling a heavy growth of vitis, a curious relative of the common grapevine, but with long, aerial roots, sometimes twenty-five or thirty feet in length, while sweeping fronds of tropical ferns border the water. The ground itself is covered almost entirely by isolepsis.

Among the rare growths from the tropics, tree ferns, the many colored crotons and dracaenas, the grotesque philodendrous and anthuriums, and many other curious and beautiful plants. Scores of trees and shrubs which, when grown occasionally in northern conservatories, remain stunted, are found in magnificent splendor throughout the building just as they grow out-of-doors in San Diego the year around.

Behind the Botanical Building and surrounding the artistic oriental pavilion erected by Japan and Formosa, is a Japanese garden filled with rare plants. These plants, from the Far East, among which the Japanese cedar and wistaria are especially noticeable, form one of the most remarkable pictures on the Exposition grounds.

From the Japanese garden, it is just a step to the Alameda, bordering which lies the citrus orchard, containing oranges, lemons, grapefruit, tangerines, kumquats, and a number of hybrids of various citrus graftings. All the trees are blooming and bearing just as they do in the rich orchards of Southern California. On the model farm across from the citrus orchard, are growing the fig, date, apricot, olive, and alligator pear.

Only a few feet further down the Alameda, is Sir Thomas Lipton's

tea plantation, imported from Ceylon, and the first in the United States. There are 200 young tea saplings growing and bearing commercial tea leaves, which are served as tea at the pavilion in the center of the garden.

Returning along the Alameda to the *Calle Cristobal*, and thence by the *Prado* to the east gate, the visitor finds the pepper grove, another unique feature of San Diego's unique Exposition. Except for the emergency hospital, there are no buildings at all in the grove, which is just a quiet, beautiful retreat where one can rest within view of the blue Pacific. The lawns of the grove are clover and blue grass and lippia.

A full list of Exposition flora is at the back of the book.

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## Architecture

One of the most distinctive features of an Exposition, and one that impresses itself most strongly upon the mind of the average visitor, is its architecture.

Not only does the architecture of the San Diego Exposition appropriately house the exhibits in comely fashion, but through it is a subtle history of architectural precedent, leading one backward through the centuries by way of the California Mission period, which produced that wondrous chaplet of simple Spanish gems, the Franciscan Missions, stretching from San Diego de Alcalá to San Francisco de Sonoma.

Aside from occasional architectural attempts, no effort of great importance has been made in the style which recalls this historical and interesting past until the building of the Panama California International Exposition.

That the effort has not been in vain is evidenced by words of architects and writers throughout the country. The acceptance of the indigenism of the Fair is remarkable. Throughout the western states and especially in Southern California, in recent architectural work is seen the insistent influence of this late-day Spanish-Mission renaissance.

While the Exposition might have been designed in classic form, following the precedent set in former international expositions, yet from the very first there was a realization of the value and beauty of the Spanish-Colonial style and of its singular appropriateness to this Exposition.

Crossing the quarter-mile *Puente Cabrillo*, the visitor finds himself facing the massive gateway which marks the main entrance to Exposition grounds. It is not a new gateway, but, softened by the sand blast and chipped here and there to bring about the appearance of antiquity, it is just such a portal as might have stood at the entrance to a city in Old Spain, centuries ago. Inside the gateway, the bustle of a twentieth century tidewater city is heard no longer. It is as though one stood on a magic carpet, wished himself on the shores of Spain three centuries ago, and found the wish fulfilled.



Entering the Plaza in the middle of the California quadrangle, the visitor finds himself face to face on the left with the front of an impressive Cathedral, and on the right, with a row of sturdy *portales*, such as might grace the front of an old California Mission. The cathedral has many of the characteristics of the churches of Mexico and Spain, its ornate frontispiece rivaling that of the Sagraria of Mexico City, and its tiled dome that of Oaxaca. The visitor should study the sculpture of this frontispiece. In it will be found boldly modeled in stone, figures of famous men connected with the city and environs of San Diego and an heraldic record of her political history.

Opposite the California State Building, the Fine Arts Building impresses one as a civic or ecclesiastical palace intimately related to the cathedral. In it the great vaulted picture gallery seems but yesterday changed from its ancient use as a great audience hall or refectory. The little private chapel close at hand is as it might have been a century or more ago. Appropriate and religious history is recalled in this chapel in the reredos of the altar and in the paintings hung upon the walls. The whole California group is an architectural amalgam of Mission, Mexican Churrigueresque and Spanish renaissance styles at their best.

Passing from the *Plaza de California* to the *Prado*, the visitor walks between long rows of bleached blackwood acacia trees, just back of which are hedges of poinsettia and other shrubs and flowering plants. Then beyond the hedges rises a succession of Mission arches or *portales* which line the walks, stretching from one end of the *Prado* to the other. On the right, as the visitor progresses up the *Prado*, he sees the Russia and Brazil Building, flanking the Montezuma gardens, recalling on its front the Santuario at Guadalahara, Mexico, architecturally a connecting link between the Spanish-Mexican work and that of the California Missions. As the visitor proceeds up the *Prado*, he notes in succession examples of various types of civic, urban and religious architecture, representing many periods in Mexico, Spain and the east, all brought into harmony by the connecting arcades and the feeling of unity throughout the sculptural design.

On *La Via de los Estados*, is the New Mexico State Building, a type of the earliest Spanish-American mission, quite as much Indian as it is Spanish. There is nothing ornate about this structure. The plain, straight lines without even the curved arches, the weather-beaten beams protruding from the outside walls and the hardy, substantial beauty of the whole structure make it one of the most attractive on the Exposition grounds. The New Mexico Building is an example of the work of the Franciscan missionaries in New Mexico, whose architectural work was influenced by the local traditions and ability of their Indian converts. The building shows the difference in character from that of the Franciscan Mission work in Southern California, which came at a later period.

There are openings in the long arcades of the *Prado* which lead to quiet patios whose silence is broken only by the murmur of fountains. There are rose-covered gateways leading into pergolas which dot the broad lawns adjoining the buildings and stretching back to the brink of the cañons. There are exedras in the botanical gardens. There are stone balconies overlooking arroyos planted with a wide variety of

tropical and semi-tropical plants. All gardens, gateways and buildings are Spanish-Colonial; and yet there is variety enough to lend fresh charm to every view.

Nothing connected with past fairs has been so depressing as the destruction of the buildings after the Expositions were over. This, however, will not be the case in San Diego. On January 1st, 1916, the first year of the Exposition came to a successful close. Except for the complete changing of exhibits, the life of the Exposition has gone on and will continue at least until 1917 without a break. The planting has been improved and amplified, new edifices added and all the buildings, including concessions, put in thorough order for an indefinite period of usefulness. All structures except the concession buildings along the Isthmus, have been built to stay. In the great west quadrangle, for example, the structures are built entirely of concrete, steel and other fire-proof materials and will be used for years to come for housing the museum exhibits which have been donated to the Exposition.

In the Botanical Building, where is assembled a wealth of rare flowers and plants, steel and concrete have been used. The Administration Building, the fire station, the hospital and other service buildings are for permanent use; and the great music pavilion at the lower end of the *Plaza de Panama* is likewise of steel and concrete construction and will become the property of the city after the Exposition has been dissolved.

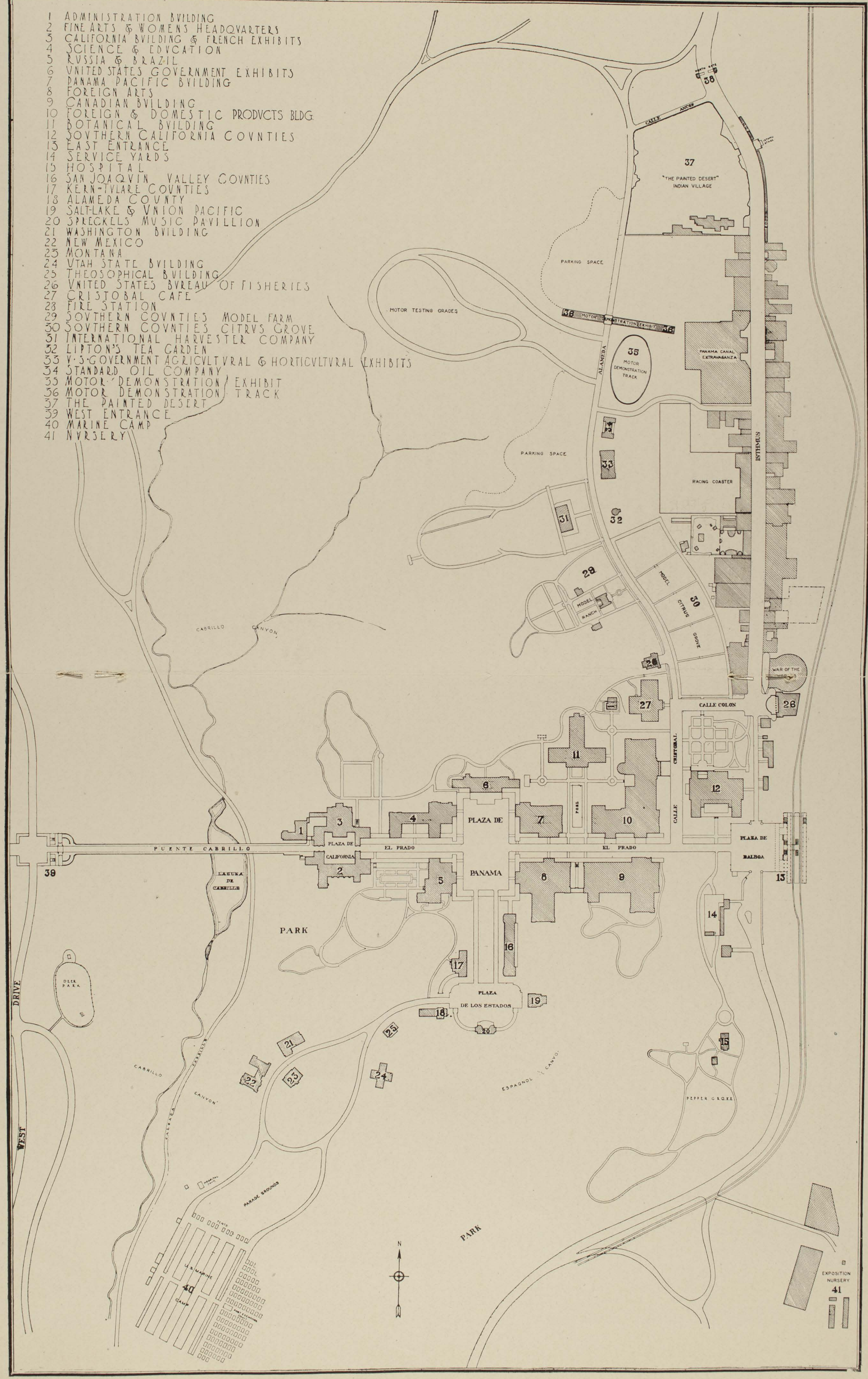
All the other Exposition buildings are of staff and plaster placed on a firm backing of metal lath. In the climate of this particular part of Southern California where frosts, sudden changes of temperature and heavy gales are unknown, these structures are estimated to last at least for thirty years.

The general plan of the Exposition is a co-ordination of the work of Bertram Grosvenor Goodhue, the supervising and consulting architect of the Exposition, and of Frank P. Allen, Jr., the Director of Works. The buildings of the California quadrangle were designed by Mr. Goodhue and erected under the personal supervision of his representative, Carleton Monroe Winslow, who also designed, subject to the approval of the supervising architect and the Director of Works, the majority of the other buildings along the *Prado* or main axis of the Exposition. The U. S. Government Building, at the head of the *Plaza de Panama*, the San Joaquin Valley Building and the Canadian Building, were designed by Mr. Allen. Harrison Albright was the architect for the Spreckels Organ Pavilion, and Rapp Bros. of Trinidad, Colorado, were the architects for the New Mexico Building. Thomas B. Hunter of San Francisco, was the engineer for the bridge spanning the *Canon Cabrillo*, and all the construction work throughout, except that of the California quadrangle, was designed and executed by Mr. Allen.

The planting and horticultural work of the Exposition was commenced and built upon the foundation laid by John Olmstead of Brookline, Mass., who started the Exposition nurseries. This beginning was enormously amplified, and the work of designing and planting carried out by Mr. Allen. The care of this most important adjunct to the Exposition, together with its amplification, rearrangement and the constant exhibition of its beautiful sequence, both last year and this, is in



- 1 ADMINISTRATION BUILDING
- 2 FINE ARTS & WOMENS HEADQUARTERS
- 3 CALIFORNIA BUILDING & FRENCH EXHIBITS
- 4 SCIENCE & EDUCATION
- 5 RUSSIA & BRAZIL
- 6 UNITED STATES GOVERNMENT EXHIBITS
- 7 PANAMA PACIFIC BUILDING
- 8 FOREIGN ARTS
- 9 CANADIAN BUILDING
- 10 FOREIGN & DOMESTIC PRODUCTS BLDG.
- 11 BOTANICAL BUILDING
- 12 SOUTHERN CALIFORNIA COUNTIES
- 13 EAST ENTRANCE
- 14 SERVICE YARDS
- 15 HOSPITAL
- 16 SAN JOAQUIN VALLEY COUNTIES
- 17 KERN-IVARE COUNTIES
- 18 ALAMEDA COUNTY
- 19 SALT LAKE & UNION PACIFIC
- 20 SPRECKELS MUSIC PAVILLION
- 21 WASHINGTON BUILDING
- 22 NEW MEXICO
- 23 MONTANA
- 24 UTAH STATE BUILDING
- 25 THEOSOPHICAL BUILDING
- 26 UNITED STATES BUREAU OF FISHERIES
- 27 CRISTOBAL CAFE
- 28 FIRE STATION
- 29 SOUTHERN COUNTIES MODEL FARM
- 30 SOUTHERN COUNTIES CITRUS GROVE
- 31 INTERNATIONAL HARVESTER COMPANY
- 32 LIPTON'S TEA GARDEN
- 33 U.S. GOVERNMENT AGRICULTURAL & HORTICULTURAL EXHIBITS
- 34 STANDARD OIL COMPANY
- 35 MOTOR DEMONSTRATION EXHIBIT
- 36 MOTOR DEMONSTRATION TRACK
- 37 THE PAINTED DESERT
- 38 WEST ENTRANCE
- 39 MARINE CAMP
- 40 NURSERY



(28)

(29)



the hands of John Morley, general manager of the Division of Works and Superintendent of Parks of the City of San Diego.

The following is a list of concessions on the Isthmus. These are being changed from time to time, which makes it ever a new enjoyment to those who attend.

West Side Going Up: Clothes Pin Pitch Game; Cigars, Cigarettes, etc.; Kelly Game; Imperial Art Gallery; Expo. Motor Chairs and Auto Trailer; Alhambra Cafeteria; Dancing Pavilion; Peanuts and Popcorn; Doll House; Salt Water Taffy; Hawaiian Village; Race Horse; Temple of Mirth; Race Horse; Carouselle; Roller Coaster; Candy; City of Jerusalem; Shooting Gallery; Ferris Wheel; Southern Pacific Ry.; Panama Canal Extravaganza; Grizzly Gulch; Aeroplane Concessions; Painted Desert.

East Side Going Down: Exposition Zoo; Sultan's Harem; Climbing the Yelps; Dairy Products; Cider Mill; Motordrome; Knife and Cane Rack; Comfort Station; Chinatown; Joy Wheel; Palace of Mines; Robinson Animal Show; Mme. Ellis and "Captain"; Gem Mine; Roast Beef Sandwich; Japan Joy Garden; Alligator Farm; Novelties and Souvenirs; News Stand; Paris After Midnight; Ostrich Farm; Skee Ball; Baseball; White House Cafe; Imperial Conc.; War of the Worlds. Elizabeth is located opposite the Panama Canal.



## THE EXPOSITION FLORA

A briefly described list of the most noticeable cultivated plant life in and about the Exposition Grounds. Technical terms have been avoided and words as simple as possible have been used. Where the flowering season is mentioned it is only approximate, as an early or late spring changes the time often as much as two weeks. The list is grouped under three sections: Trees and Shrubs, Vines and Climbers, Herbaceous and Miscellaneous:

### TREES AND SHRUBS

- Abelia rupestris*—China and Mexico—Shrub—Very free flowering, rather drooping, leaves small, opposite, glossy, metallic bronze in color. Flowers fragrant, small, numerous, pink, glossy. About  $\frac{3}{4}$  in. long. One of the hardiest and most free flowering of the Abelias. June to November.
- Abutilon megapotamicum*—Trop. Amer.—"Flowering Maple Shrub."—Drooping habit, leaves rather small, lance shaped, sharply serrated, not lobed. Flowers bell-shaped, 2 to 3 inches long on short drooping stalks. The long calyx bright red, the protruding petals lemon yellow; stamens conspicuously protruding. Used for windows, baskets, etc.
- Abutilon Savitzii*—"Flowering Maple Shrub"—One of the dwarf hybrid varieties. Leaves small, maple-like, margined white. Used for bedding.
- Acacia armata*—"Kangaroo Thorn"—Australia—6-10 ft.—Shrub with undivided leaves and small thorns. Leaves 1 in. or less in length,  $\frac{1}{4}$  in. wide, with a short sharp point. Flowers yellow, in solitary heads all along the branches. Good hedge plant.
- Acacia Baileyana*—Australia—Tree.—Grows rapidly to about 30 feet in height. Leaves grayish green, glaucous, feathery and finely divided. Flowers profuse and very early. Golden yellow.
- Acacia cultriformis*—N. S. Wales—Tall Shrub, 10 ft.—Foliage willowy, leaves nearly triangular, dagger-pointed, small, undivided. Flowers profuse in clusters, all along the branches. Deep yellow.
- Acacia cyanophylla*—"Blue-leaved Wattle"—Australia—Small tree with drooping branches. Leaves very long, often 1 foot, about  $1\frac{1}{2}$  inches wide, sea green, almost blue in color. Flowers, yellow in large globular heads.
- Acacia dealbata*—"Silver Wattle"—Australia—Large, round-headed tree, makes rapid growth. Leaves feathery, very finely divided. Flowers yellow, profuse, covering entire tree. Foliage glaucous, young branches covered with white velvety down.
- Acacia decurrens*—"Black Wattle"—Australia—Large tree of rapid growth, broad, round head. Leaves feather shaped, dark green. Flowers whitish yellow. Blooms nearly all the year.
- Acacia floribunda* (A. neriifolia)—Victoria—Tall, quick growing tree. Long, slender, light green leaves. Flowers yellow, in short clusters, very fragrant. Practically everblooming.
- Acacia latifolia* (or A. longifolia)—Australia—Tree—Rapid growing, 50 ft. Leaves undivided, long and broad, tapering at both ends. Flowers yellow, in short spikes, borne all along the branches. February to March.
- Acacia lophantha* (Syn. Albizzia lophantha)—Australia—Tree 30 ft.—Very spreading, small tree. Leaves large, much divided. Flowers greenish yellow, in small spikes. Exceedingly rapid grower.
- Acacia melanoxylon*—"Australian Blackwood Tree"—Australia—Erect, pyramidal, forming well shaped head. Flowers very light yellow, in heads. Leaves large and oblong. Much used for street planting. Peculiar characteristic is that it has, when young, both "blade" and "feather" leaves.
- Acacia mollissima*—"Green Wattle"—Van Dieman's Land—Tree 40 ft.—Large, round-headed, rapid grower. Leaves feathery, very finely divided. Flowers clear yellow, fragrant, covering entire tree. Foliage clear green, and bark on young branches green, but the young shoots yellow.
- Acacia pycnantha*—"Golden Wattle"—Victoria—Small, round-headed tree with large, undivided thick leaves, green and waxy. Flowers in clusters, very large, golden yellow, fragrant. Medicinally, the bark of this tree is used in a tincture, used as a healing wash, and also internally. February to March.
- Acacia saligna*—New Holland—Small tree—Grows 8-10 ft. high, leaves 9-10 inches long, lance-shaped, narrowing at both ends, glaucous and scattered on the branch. Flowers yellow, large, in small clusters.
- Acacia verticillata*—New Holland—Small tree, 10 ft.—Very different from most other species. Leaves dark green, rigid, sharp,  $\frac{1}{2}$  to  $\frac{3}{4}$  in. long, slightly resembling those of some pines. Flowers deep yellow. Grows very bushy and spreading. March.
- Acokanthera spectabilis*—Natal—Shrub 4-6 ft.—Poisonous, trim, erect, sub-tropical shrub, of columnar habit. Leaves opposite or alternate, thick and leathery, 3 or 4 in. long, very acute, short stalked, not serrated shining above, green, shading to copper color. Flowers numerous, very fragrant, pinkish white, tubular, about 1 inch long. Fruit berry-like, nearly black, size of plum. April.
- Alligator Pear*—See *Persea gratissima*.
- Aralia papyrifera*, "Formosa-Rice tree"—(Syn. *Fatsia papyrifera*)—Shrub—Leave large, 8-12 inches long, 5 or 7 lobed, clothed, together with the stems, with a sort of down, but finally glabrous. Stem branching above. Flowers greenish white, in drooping panicles; sometimes 2 to 3 ft. long.
- Aralia Sieboldi*, *Aralia Japonica*—See *Fatsia Japonica*.
- Araucaria bidwilli*—"Bunya-bunya Pine"—Moreton Bay—Tree 150 feet—Coniferous evergreen; large, and when mature, very symmetrical. Leaves are flat, very sharp pointed, thick, dark glossy green. Said to be one of the finest and most symmetrical evergreens in cultivation. Is generally planted solitary, as a specimen.



**Araucaria excelsa**, "Norfolk Island Pine"—Norfolk Island—Tree 200 feet—Symmetrical evergreen, of curious habit. Branches grow in tiers, between which the trunk is absolutely bare. Leaves curved and sharp pointed. "Piney" in appearance. One of the best.

**Areca sapida**—See *Rhopalostylis Sapida*.

**Attalea cohune**—Honduras—40-50 feet—Spineless palm; leaves arising almost perpendicularly and the upper part arched. Leaves dark green, divided like a feather. Fruit broadly eggshaped, about 3 in. long, used for soapmaking and exported from Honduras for this purpose.

**Aucuba Japonica** and varieties—Japan and Himalaya—Shrub 4 to 15 ft. high—Leaves usually ovate 3 to 8 inches long. Remotely and coarsely toothed, pointed and glossy surface. Berries scarlet, usually oblong, in crowded clusters.

**Aucuba maculata mascula**—Japan—Shrub 4 to 15 ft. high—Leaves 3 to 5 inches long, coarsely toothed on upper half, irregularly spotted and blotched yellow.

**Avocado**—See *Persea gratissima*.

**Bauhinia grandiflora** (Mountain Ebony)—Andes—Tree 15-20 ft.—Large flowering species, tall and fast-growing. Leaves yellowish green, two lobed, shiny, of medium size. Flowers pure white, very large, expanding in the night; solitary at tips of the branches. Flowers resemble butterflies in appearance.

**Berberis Darwinii**—So. Chile—Shrub 2 ft.—Small shrub, with brown branches, somewhat downy when young. Leaves  $\frac{1}{2}$  inch to 1 inch in length, sharply toothed, similar to holly, glossy dark green above. Flowers in pendulous clusters, orange yellow in color. Berries dark purple. June to April.

**Buddleia Madagascariensis**—Madagascar—Shrub 6-12 ft.—Rank growing, sub-tropical shrub. Leaves dark green above silvery gray beneath. Branchlets gray and woolly, leaves somewhat the same beneath. Flowers in terminal panicles with a decided honey-like odor, yellowish in color, and also gray and woolly outside.

**Buddleia Lindleyana**—China—Shrub 3 to 6 ft.—Leaves ovate or somewhat lance-shaped, pointed, slightly toothed, pale green beneath, 2 to 4 inches long. Flowers small in rather long 3 inch to 5 inch dense clusters, purplish violet.

**Buddleia variabilis**—China—Shrub 8 to 10 ft.—Handsome species of rapid growth. Leaves strap-shaped, silvery and downy beneath; rough, coarsely serrated, 4 to 10 in. long. Flowers in long spikes, at the ends of the branches, lilac with yellow mouth. Fairly hardy.

**Buxus sempervirens**—Orient—"Common Box Tree"—Shrub or small tree to 25 ft., young branchlets quadrangular. Leaves oval, oblong, or merely oval; half to one and one-half inches long, leathery and glossy. Flowers in axillary clusters.

**Callistemon lanceolatus**—Australia—"Bottle Brush"—Grows to about 8 ft. in height in California. Branches erect or spreading. Leaves lance-shaped  $1\frac{1}{4}$  to  $2\frac{1}{2}$  inches long, by  $\frac{1}{4}$  inch wide; sharp-pointed; midrib prominent. Flower spikes 2 inches to 4 inches long, bright red, sometimes varying to a paler shade. Requires considerable pruning to keep it bushy.

**Callistemon rigidus** (Syn. *C. linearifolius*)—Australia—"Bottle brush"—Stiffly branched shrub, with rather long branches. Leaves quite narrow, about  $\frac{1}{8}$  inch; rigid and sharp-pointed, 2 to 5 inches long, numerous oil dots. Flowers in bottle brush-like spikes of deep red. The woody fruit remaining in compact cylindrical clusters for several years.

**Callistemon speciosus**—Australia—"Bottle brush"—Graceful tree or large shrub, with drooping branchlets. Leaves narrow, lance-shaped,  $1\frac{1}{2}$  to 4 inches long,  $\frac{1}{4}$  inch wide, midrib prominent. Flowers very bright red, in large clusters. This is the most highly colored of the Callistemons. Does well with but little care.

**Calluna vulgaris**—See *Erica vulgaris*.

**Camphora, officinalis**—Japan—"Camphor tree"—Tree 40 ft.—Very symmetrical evergreen of moderate growth. Leaves pointed, glossy green, strongly scented with camphor. New growth pinkish. Camphor gum of commerce is obtained from this tree. Useful for avenue planting.

**Cantua buxifolia**—Peru—Shrub, 4 to 8 ft.—Much branched; branches somewhat downy. Leaves very variable, sharp-pointed, narrow,  $\frac{1}{4}$  to  $\frac{3}{4}$  in. long. Flowers in terminal clusters of from 3 to 5, funnel shaped, 2 inches long, corolla tube orange red, generally streaked, petals shading from pale to deep rose inside, clear rose outside. Very free flowering and showy. Equally as hardy in S. Cal. as *Fuchsia*. February.

**Carissa grandiflora**—So. Africa—"Natal Plum," Spiny shrub—Tropical or sub-tropical shrub. Leaves varying shades of green, mostly dark. Somewhat leathery in texture; oval. Flowers large, white solitary, on the ends of the branches; fragrant, twisted to the right. Fruit red, size of a cherry, and edible.

**Carumbium populifolium** (Syn. *Homalanthus Leschenaultianus*)—Australia—Poinsettia family—Shrub, with copper colored foliage, and milky juice. Leaves, broadly ovate triangular, 2 to 6 inches long with stalks reddish of same length. Flower clusters rather insignificant, 1 to 4 inches long. April 15.

**Cassia artemisioides**—Australia—Tree-like shrub—Soft, grayish green and hoary all over. Leaves opposite, 3 to 5 pairs, needle-like. Flowers deep yellow, small somewhat scattered. Stands drought. December to April.

**Cassia tomentosa**—Mexico—Shrub 4-8 ft.—Winter-blooming shrub, very irregular and crooked in habit, stems, leaves and branches somewhat woolly. Leaves in 6-8 pairs, opposite,  $\frac{1}{4}$ - $\frac{1}{2}$  inch wide, blunt at both ends, dark green above, light green beneath. Flowers yellow, med. size, 5-petaled.

**Casuarina equisetifolia**—"Beef Wood"—Australia—Tree, 150 ft.—Curious, rapid growing tree. Branches drooping, pale green jointed, leafless. General habit likened to the feathers of the cassowary (*casuarius*) or the tail of a horse (hence the name *equisetifolia*). Redness of wood suggests the name "Beefwood." Tolerant of alkaline and saline soils.

**Casuarina stricta**—"Beef Wood" or "She oak"—Australia—Rapid growing tree, 20-30 ft., branches erect, light green, jointed, leafless. Resembles *equisetifolia* (which see) although the branches are shorter, not so drooping, more decidedly green.

**Cedrus Deodara**—"Deodar Cedar" or "Fountain Tree"—Western Himalayas—Sacred cedar. Tall tree, pyramidal habit, 150 ft., leaves  $\frac{1}{2}$  inch long, dark bluish green, rigid, as thick as broad. Cones  $3\frac{1}{2}$ -5 inches long, reddish brown. Drooping somewhat, lower limbs lie on the ground. Good tree for California. Name of Fountain Tree suggested by drooping habit.

**Cedrus Atlantica**—"Atlas Cedar"—Atlas mountains of Algeria—Large pyramidal tree, 120 ft., leaves mostly less than 1 inch long; usually thicker than they are broad, rigid, sea-green. Cones 2-3 inches long, light brown. Hardest species.

**Cedrus libani**—Lebanon and Taurus in Syria—"Cedar of Lebanon"—Large tree, with wide spreading, horizontal branches, forming a broad head when older, leading shoot nodding. Leaves 1 in. or more, broader than thick, dark or bright green, sometimes bluish or silvery. Cones  $\frac{3}{4}$  in. long, brown. Resembles *Atlantica*, but grows more slowly and is more compact in habit.

**Ceratonia siliqua**—St. Johns Bread—"Carob tree"—So. Europe—Evergreen tree of rapid growth, 40-50 ft. spreading branches. Leaves are large, leathery, glossy, dark green. Flowers are petalless, pods are filled with a pulpy substance, which is edible both for man and for stock. Supposed to have supplied St. John with food while in the wilderness, the seeds and pulps being respectively the "locusts and wild honey." The dry pods are supposed to have been the dry husks of the "prodigal son." The seeds of this tree are also said to have been the original carat weight of the jewelers.

**Cestrum elegans** (Syn. *Habrothamus elegans*)—Mexico—Shrub—Tall, slender, semi-climbing, branches clothed with a purplish red down. Leaves egg-shaped, medium size, also slightly clothed with the purplish red down beneath. Flowers also purplish red, in loose clusters at ends of branches. Blooms almost continuously.

**Cestrum nocturnum**—"Night Jasmine"—Jamaica—Shrub 6-9 ft.—Growth moderate. Branches brownish, very slender and flexible. Leaves very thin, elliptical, sharp pointed, medium shade of green. Flowers creamy yellow, very fragrant at night. March.

**Chamerops humilis**—"Dwarf Fan Palm," "European Palm"—"Vegetable Horsehair"—Dwarf, hardy, very slow grower. Leaves small, with spiny stalks. Good for tub culture and for small spaces.

**Choisya ternata**—"Mexican Mock orange"—Mexico—Shrub 4-8 ft.—Compact, free blooming shrub; leaves light green, divided into 3 leaflets, fragrant when crushed. Flowers profuse, small white in clusters, very fragrant. March 1.

**Chrysanthemum frutescens**—"Marqueterite or Paris Daisy"—Common marguerite, widely used for hedge and border purposes, etc. This species has medium dark green leaves, not so much of a sea green color as *C. anethifolium*, and is better for cut flowers than the latter.

**Cistus monspeliensis**—"Rock Rose"—So. Europe—Shrub 4 to 5 ft.—Free flowering; leaves small, rough grayish green, stemless, covered with small hairs on both sides. Flowers white, medium sized—resembling a single rose.

**Cocos Weddelliana**—Tropical Brazil—A slender, graceful feather-leaved palm. Leaves about 3 in. long, leaf stem about 8 to 20 ft., segments are equidistant and weak so that they droop. One of the most important of small ornamental palms.

**Cocos plumosa**—Central Brazil—A popular avenue palm ultimately about 40 to 50 ft. high, 10 to 12 in. thick, ringed at intervals of about a foot. Leaves erect-spreading, 12 to 15 ft. long, the segments linear, flaccid, rather sparse, mostly in groups of 2 to 4, plumelike and graceful.

**Cocos Yatay**—Brazil—A feather-leaved palm of bluish color. Stem 12 to 15 ft. high, over 1 ft. in diameter. Leaves strongly recurved, 6 to 9 ft., fibrous sheath, the leaf stem fibrous toothed.

**Coprosma baueriana**—New Zealand—Shrub—Of low growing habit, or can be trained up as a low climber. Leaves are rounded, dark green, exceedingly glossy, presents the appearance of being varnished. Dust will not adhere to them. Flowers inconspicuous followed by bright yellow berries.

**Corypha australis**—See *Livistona australis*.

**Cotoneaster angustifolia**—"Rose Box Shrub"—China—Low growing shrub, sometimes spiny; leaves narrow, variable in size; somewhat hairy beneath, dark green above. Flowers small, clustered, followed by bright orange yellow berries.

**Cotoneaster microphylla**—Himalayas—Low, prostrate shrub, densely branched. Leaves very small,  $\frac{1}{2}$  in. or less, wedge shaped, ends broader than the base, dark green and glossy above, lighter and duller beneath. Flowers white. Berries bright red. Suitable for rockeries. May.

**Cotoneaster pannosa**—China—Shrub about 3 ft. high. Leaves mostly elliptic, white beneath dark green above. Rather more drooping, and graceful than those of some other *Cotoneasters*. April 15.

**Crataegus crenulata**—Asia (*Cotoneaster crenulata*) (*Pyracantha crenulata*)—Very similar to *C. pyracantha*, leaves narrower, more leathery, bright green and glossy above,  $\frac{1}{2}$  in. long. Berries bright orange-red. May.

**Crataegus pyracantha**—"Hawthorn"—Italy to W. Asia—"Evergreen Thorn," "Fire Thorn"—Shrub or small tree, sometimes 25 ft.; leaves broadly oval, small. Flowers white, in large clusters, followed by a profusion of orange-red berries. Shrub is upright growth and thorny, the thorns bearing leaves. April to May.

**Cryptomeria Japonica elegans**—Japan—"Japan cedar"—Low, dense tree, with horizontal branchlets, foliage fine and feathery, in summer bright green, changing to bronzy red in fall and winter. Very handsome when young, but rather short-lived.

**Cupressus Arizonica**—"Red Barked Cypress"—Arizona and California—"Arizona cypress"—Branches horizontal, forming a narrow pyramidal or broad open head. Old bark, dark red or brown, separating into long shreds; that of the younger twigs bright red under the irregular scales. Leaves pale green. Wood is soft, close grained, grayish with yellow streaks. Used locally for fuel, etc.

**Cupressus funebris**—"Funereal Cypress"—Northeast China—Erect tree, with wide



spreading, somewhat pendulous branches. Foliage light green, very fine and graceful. Cones are short and about 1-3 in. in diameter.

**Cupressus macrocarpa**—"Monterey cypress"—So. California—Tree 60 to 70 ft.—Well known, rapid growing native cypress. Forms a broad spreading pyramidal head with horizontal branches. Leaves one-eighth in. long, dark green, deciduous after 3 or 4 years. Cones clustered on short stems, elliptic, 1 to 1½ in. long, 2-3 in. broad, 4 to 6 pairs of scales. Much used for hedges and windbreaks. Stands heavy trimming. Good in sandy soils.

**Cupressus sempervirens fastigiata**—So. Europe, W. Asia—"Italian cypress"—Tall, very slender, erect, tapering, conical. Branches lie close to the stem, giving a very symmetrical appearance. Used for lining drives and for formal landscaping of various sorts.

**Cycas revoluta**—"Sago Palm"—China—Tree 7 ft.—Small, slow-growing palm-like tree; the leaves, borne on a single central trunk. Leaves dark green, feather like, 2 to 6 ft. long. Suitable both for lawn and conservatory decoration.

**Cydonia Japonica**—"Jap. Quince"—Japan—Shrub 3 to 6 ft.—Deciduous, spiny shrub of spreading habit. Leaves oval, sharply serrate, glossy above, from 1½ to 3 in. long. Flowers usually scarlet, although there are other varieties; borne in clusters of from 2 to 6, 2 in. in diameter, borne before the leaves. Suitable for hedges, etc. April.

**Cytisus Canariensis**—"Broom"—Canary Islands—Shrub—Grows to about 6 ft. in height. Much branched; leaves and branches very downy, leaf-stems at least half as long as the leaflets. Flowers bright yellow and fragrant. April to June.

**Cytisus scoparius**—"Scotch Broom"—Great Britain—"Common Broom"—Shrub 10 ft. with erect slender branches; dark green, ridged and almost leafless. Flowers yellow, pea-shaped. Has medicinal properties, but is poisonous in large doses.

**Cytisus scoparius Andreanus**—"Scotch Broom"—Great Britain—Shrub, 10 ft. with erect slender branches; dark green, ridged and almost leafless. Flowers yellow, with dark crimson wings.

**Datura Arborea**—"Angels Trumpet" (*Brugmansia arborea*)—Peru and Chile—Small tree, 10 ft. Leaves rather large, elliptical, not cut; grayish green, clothed with powdery down. Stem herbaceous. Flowers white, 7 to 8 in. long, funnel-shaped, fragrant. Almost everblooming.

**Diosma ericoides**—Breath of Heaven—South Africa—Small, tender, well-known shrub. Foliage fine, heath-like, has an aromatic fragrance, especially if the leaves are crushed. Flowers white, very small, star-shaped, profuse. "Diosma" is from the Greek word for divine odor. February.

**Dombeya natalensis**—Natal—Very rapid growing shrub or small tree; foliage poplar-like, leaves 5 to 6 in. in diameter; palmately lobed, rather heavily veined. Flowers white, sweet scented, about 1 in. in diameter. October.

**Dracaema cannaefolia**—(*Cordyline cannaefolia*)—Tree like shrub with graceful recurved foliage. Leaves parallel veined, 1 to 2 ft. by 3 to 5 in. wide; somewhat oblong in shape, with long stems. Tips often split. Grown mostly for the foliage.

**Dracaena congesta**—(syn. *D. stricta*)—Australia—A slender species, 6 to 12 ft. high. Leaves narrow and a foot or more long, not noticeably narrowed to a stalk. Flowers in rather small clusters born above the foliage.

**Dracaena draco**—"Dragon Tree," "Dragon's Blood"—Canary Islands—Tropical appearing trees, often mistaken for palms, although belonging to the lily family. This species grows to a height of 6 ft., trunk averaging 12 in. in diameter. Leaves very numerous, crowded, sword-shaped, sea-green in color. Flowers pyramidal in shape, greenish color. Berries orange. Derives its name of Dragon's blood from the red resinous exudation. Good for conservatory.

**Dracaena indivisa**—(syn. *Cordyline indivisa*)—Tree 10 to 20 ft.—Leaves in a dense clump, long, narrow and gracefully recurved, at top of rough barked stem. The young plants are popularly used in decoration.

**Duranta plumieri**—South America—Shrub—Good sized shrub, stems somewhat spiny. Leaves light green, varying to a brownish tint, medium size, serrated, opposite. Flowers pale blue, followed by orange berries in profusion. Flowers in August.

**Echium candicans**—(Syn. *E. fastuosum*)—Madeira—Bushy and branching, foliage green but downy. Branches thick, leafy at the tips. Leaves lance shaped, the upper ones crowded and smaller. Flowers pale blue in long spikes.

**Echium roseum**—"Vipers Bugloss"—Similar to the other *Echiums* but with very long heavy spike of pink flowers.

**Echium simplex**—Coarse woody herb—Leaves rather large, ovate, lance-shaped and in a basal cluster. Flowers white, numerous, in a long thick spike.

**Erica Mediterranea**—"Mediterranean"—W. Europe—Shrub—Well known erect growing shrub with small, needle-like leaves, and covered with a mass of small rosy purple, bell-shaped flowers in winter. This is closely allied to the bonnie purple heather of literature.

**Erythea armata**—(*Brahea armata*)—"Blue Palm"—Lower California—Fan leaved palm, rather slender trunk. Leaves very blue in color, with narrow deeply channelled stem, margined with numerous stout spines.

**Erythea edulis**—(*Brahea edulis*)—"Guadalupe Palm"—Guadalupe—Spineless, fan-leaved palm. The trunk becomes robust with thick corky bark. Leaf stems about 1 in. wide plano convex, unarmed, blade about 3 ft. in diameter, segments 70 or 80 and fibrous on the edges.

**Escallonia berteriana**—Chile—Shrub—Of erect habit and medium rapid growth. Leaves variable in size, blunt at the tips, dark green in color, crowded on the branches, glossy. Flowers white, small, in very long, loose pyramidal clusters. Almost continuous bloomer.

**Escallonia organensis**—Shrub 4 ft.—Evergreen shrub, branches red, leaves elliptical, 1½ in. to 2 in., crowded, serrated, glossy, gummy surface. Flowers pink in close terminal clusters. One of the best of the *Escallonias*.

**Escallonia rubra**—South America—Shrub 3 to 6 ft.—Erect, compact shrub with clean, glossy foliage. Leaves oval, sharply pointed, serrated, dark green, shining above, dull and with resinous dots beneath. Flowers dark red in short terminal clusters.

**Escallonia virgata**—South America—Shrub—Of erect habit, branches light brown, rod-like. Leaves dark green, glossy, crowded and nearly stemless, with blunt tips. Flowers white, small, in dense clusters on the ends of the branchlets.

**Eucalyptus amygdalina angustifolia**—Australia—"Peppermint Tree"—In its native country said to be the tallest tree in the world, individual specimens attaining height of 400 ft. with a diameter of from 18 to 35 ft. Drooping habit, similar to willow, leaves generally narrow, equally green above and beneath, with peppermint-like odor when crushed. Flowers small in compact clusters. Does best near coast and in moderate elevations in well watered mountainous regions. Will not stand dry heat.

**Eucalyptus citriodora**—Lemon Scented Gum—Australia—Handsome, rapid growing, attaining height of 60-100 ft. in Southwest. Bark light colored, smooth, mottled with faint indentations where patches have fallen off. Leaves equally glossy, green on both sides, emitting an odor like Lemon Verbena when crushed. If not pruned, this species makes most of its flowers and foliage at the top of every straight trunk. Does not stand low temperatures.

**Eucalyptus cornuta**—Australia—Tree—Large tree, otherwise similar to var. *Lehmanni*. Timber hard, tough and elastic, said to be equal to that of the ordinary ash. Used for cart making.

**Eucalyptus cornuta var. Lehmanni**—Australia—Shrubby Tree—Rather dwarf growing, very spreading, foliage dense, low branching. Bark usually somewhat rough, reddish in color and flakes off in irregular sheets. Leaves lance shaped in adult trees, rather thin, equally green above and beneath. Flowers large and greenish yellow inconspicuous, compact clusters. Seed capsules are large, protruding like horns, whence name *cornuta*. Endures dry heat if irrigated, but does not stand much frost.

**Eucalyptus corynocalyx**—"Sugar Gum"—Australia—Attains height of about 50-160 ft. Trunk straight with slight taper. Bark deep cream in color, branches darker, young twigs quite red. Leaves lance shaped (on adult trees) rather thick, glossy dark green above and a dull lighter green beneath. Profuse bloomer. Good drought resistant. Stands light frost, also fairly high temperature. Useful for fence posts and wagon wheels.

**Eucalyptus ficifolia**—"Scarlet Flowering Gum"—Australia—50 ft.—Handsome shade tree of symmetrical habit. Bark furrowed. Leaves broadly lance shaped, rather stiff and leathery, long stalked, dark green. Flowers crimson or scarlet, sometimes varying to pink. Probably the best ornamental species.

**Eucalyptus globulus**—Blue Gum—Australia—Makes a quite erect tree not always symmetrical growth. Bark continually flaking off, leaves surface smooth, and greenish gray in color. Earlier leaves broad, stemless, light bluish color, while in adult trees, sickle shaped, dark green. Flowers large, conspicuous, buds used for ornamental work. Is the best known of all eucalypts. Grows in a great variety of climates. Said to be fastest growing tree in world. Very drought resistant. Valuable for timber as a substitute for hickory, and for medicinal oil.

**Eucalyptus leucoxylon**—(Gr. for white wood)—Australia—So. Australian Blue Gum. Grows quite rapidly and attains a good size. Apt to be quite crooked unless given attention. Bark smooth and light colored. Wood white and straight grained. Foliage has a bluish cast, and is well distributed. Leaves broad, and stemless or short stemmed. Flowers grow in threes and abundantly, color varying from white to pink or reddish. One of the hardiest, standing both high and low temperatures. Has same uses as *globulus* and thrives where latter does not.

**Eucalyptus polyanthema**—"Red Box"—Australia—Of medium size, not originally over 1 ft. in diameter. Not a rapid grower. Quite spreading in habit. Bark persistent, somewhat furrowed, of a grayish color. Leaves broadly egg-shaped, of an ashy or dull green hue on both sides. Flowers profuse and small in clusters. Thrives under a greater variety of climatic conditions than most species. Timber very hard, strong and durable. Useful for bee pasture, flowering when other sources of honey are limited.

**Eucalyptus pulverulenta**—(Syn. *E. Cordata*)—Australia—Small tree, spreading branches. Leaves opposite, set close to stem and growing together at base, round, flattened at base, bluish green, rather crowded.

**Eucalyptus punctata**—"Leather Jacket"—Australia—Medium height, more spreading than most *Eucalypts*. Bark rough, dark colored and flakes off somewhat. Leaves lance or sickle shaped and thin, under surface rather paler than the upper shiny one. Flowers above medium size in clusters of from 3 to 10 on rather stiff, flattened stalks. Does well on or near the coast, but not in the dry interior. Useful for fence posts, parts of wheels, ties, fuel, etc.

**Eucalyptus resinifera**—"Red Mahogany"—Australia—Grows to about 100 ft. in height in native country. Is erect and symmetrical in habit. Bark dark reddish, fibrous, persistent, rather stringy. Wood is a rich red color resembling true mahogany, and is very heavy. Leaves slender and usually curved, somewhat leathery, rather paler beneath than above. Flowers about medium size in clusters of 4 to 10. Does well in coast region, but not in dry interior. Does not stand extremes of temperature. Useful for furniture work.

**Eucalyptus robusta**—"Swamp Mahogany"—Australia—Grows about 50 ft. in height, with a diameter of 1 ft. (in southwest). Bark rusty gray in color, persistent, furrowed. Leaves large and leathery, sometimes 6 in. long, and 2 in. wide, dark green above, and paler beneath. Flowers cream colored, large and profuse in clusters of 3 to 10 on stout flattened stems. Does well in coast region, but not in dry interior.

**Eucalyptus rostrata**—"Red Gum"—Australia—Fairly rapid grower, generally above medium size. Habit variable, sometimes erect and symmetrical, sometimes irregular. Foliage varies from livid green to yellowish or reddish in color. Bark smooth and reddish or ashy gray in younger trees, rough in older ones. Flowers cream white, small on slender stems in clusters of from 3 to 12. Leaves narrowly sickle shaped. Stands much heat, severe frost and drought.



*Eucalyptus sideroxylon*—"Red Ironbark"—Australia—Grows into a medium-sized or large tree. Erect, with even trunk. Bark hardest and darkest of the Ironbarks. Color dark red or brown, furrowed and cracked. Leaves are narrowly lance shaped, often curved, somewhat silvery. Flowers medium size, in clusters of 3 to 8, light pink to scarlet in color. Good for dry soils, but does not stand extreme heat very well. Timber useful for a variety of purposes.

*Eucalyptus tereticornis*—"Forest Red Gum"—Australia—Makes large tree, straight, and of quite rapid growth. Bark smooth and grayish, inclined to flake off. Leaves are broad and short stemmed on seedlings, narrower, longer stalked and more scattered on adult trees. Flowers rather large, in open clusters of from 4 to 8 on slender stalks. Does best near coast, but stands dry heat, frost and drought. Timber has about same uses as Red Gum.

*Eucalyptus viminalis*—Manna Gum—Australia—Makes rapid growth, and generally becomes a large tree. Bark variable, mostly persistent, brownish rough. Has the peculiar characteristic of exuding a honey like substance (commonly called manna) when bark is punctured. Branches drooping, willow-like. Leaves pointed at both ends. Flowers medium size on rather slender stalks in clusters varying from 3 to 7. Grows under a variety of conditions. Timber not valuable except for shingles and rough material.

*Eugenia Australis*—See *Eugenia myrtifolia*.

*Eugenia myrtifolia*—"Brush Cherry"—(E. Australis)—Queensland and N. S. Wales—Tall, erect shrub, of compact growth. Leaves dark, glossy green when mature, ruddy on new growth, egg shaped to lance shaped. Flowers creamy white, followed by edible berries, red or violet in color. Closely related to Myrtle, the flowers being of similar form. Makes splendid and beautiful hedge.

*Fabiana imbricata*—Chile and Peru—Shrub 10 ft.—Hardy evergreen, heath like shrub, of erect, rigid growth. Leaves very small, overlaid, like scales around the branchlets. Flowers white, tubular, very numerous. Does well in most soils, thrives best when grown against a wall.

*Fatsia Japonica*—(Syn. *Aralia Japonica*) (*Aralia Sieboldi*)—Japan—Shrub 5 ft.—Erect growing, leaves 1 ft. or more across, smooth, glossy green, 5 lobed, leathery. Stem straight, forming an umbrella like head. Half hardy. Requires shady location.

*Fatsia Japonica variegata*—Similar to *Fatsia Japonica*, except that the leaves are variegated with white.

*Ficus elastica*—"India Rubber-plant"—Tropical Asia—Large tree, leaves 3 to 12 in. long, shiny, leathery, elliptic, with pinkish sheath when young. Bark smooth and grayish. Yields the rubber gum of commerce.

*Ficus macrophylla*—"Moreton Bay Fig"—Australia—Large, spreading tree, leaves 6 to 10 in. long, 3 to 4 in. wide, shiny dark green above, lighter beneath leathery, sheath on young leaves white, similar to *Ficus elastica*.

*Ficus nitida*—(F. retusa)—Tropical Asia—Tree with milky juice. Leaves 2 to 4 in. long, nerves 5-6 pairs, leaf stalk very short, fruit yellow or reddish.

*Ficus pandurata*—Majestic Rubber Tree—China—A new species of rapid growth. Leaves very large and somewhat rectangular in shape, hard texture with prominent veins and undulated surface.

*Fothergilla Gardeni*—S. Alleghanies—Hardy, ornamental growth, with alternate deciduous simple, dull green leaves. Flowers white in showy spikes. Foliage resembles Alder, and turns yellow late in fall.

*Genista andreana*—See *Cytisus scoparius* var. *Andreana*.

*Genista canariensis*—See *Cytisus canariensis*.

*Grevillea robusta*—"Silk Oak"—Australia—Tree, 60 ft.—Good size tree of rapid growth. Leaves fern shaped, flowers produced in large golden yellow trusses, very fragrant. Very drought resistant, but stands only light frost. Wood used for staves of casks, also for furniture. Flowers valuable for bees.

*Grevillea thelemanniana*—Australia—Tall, low branching shrub with fine needle-like foliage, and bright red flowers. Very drought resistant, but will not stand much frost.

*Habrothamnus elegans*—See *Cestrum elegans*.

*Hakea gibbosa*—Australia—Broad shrub, 6 to 8 ft. high, twigs and young leaves hairy, leaves cylindric rigid, smooth, spine like. Flowers white.

*Hakea pugiiformis*—Australia—Shrub of same habit, foliage and general characteristics of *H. gibbosa*, the difference being that the flower corolla of same is downy, center is longer, seed capsule much more slender and shorter.

*Hakea suaveolens*—A dense rounded shrub 8 to 10 ft. Leaves two to four in. long, about 1-10 in. thick, cylindrical with sharp tip, narrowly grooved on upper side, usually branched into 1 to 5 rigid cylindrical divisions. Flowers in pairs mostly in the leaf axils, delicate, fragrant.

*Hibiscus mutabilis*—"Changeable Hibiscus," "Cotton Rose"—China—Shrub or small tree, 20 ft. Tall slender shrub with large downy leaves, 4 in. across, heavily veined; toothed with stems 3 in. long. Flowers open vure white, changing through pink at noon to red at night.

*Hibiscus syriacus*—"Rose of Sharon"—China—Shrub 6 to 12 ft.—Well known shrub, much branched, leaves smooth, rather small, short stemmed, 3 ribbed, triangular, 3 lobed, serrated; flowers are solitary, slightly funnel shaped, and vary in the different varieties from purple, red and flesh color to white. There are both single and double forms. Flowers are used commercially in preparing shoe polish.

*Howea forsteriana*—See *Kentia forsteriana*.

*Hunnemannia fumarlaefolia*—"Tulip or Bush Poppy"—Mexico—Semi-shrubby herb with flowers of very much the same shape as the California Poppy but lemon in color. Foliage bluish green, finely cut.

*Hypericum hircinum*—Mediterranean region—Small shrub 2 to 3 ft. high, of round compae habit. Leaves dark green, 1 to 2 in. long, smooth surface and edges. Flowers deeper yellow and smaller than the other species, less than 1 in. in diameter, stamens very long. Leaves have decided goat like odor, hence the name *hircinum*. Requires a dry position and is susceptible to frost.

*Hypericum moserianum*—Gold Flower—So. Europe—Small shrub 2 ft. with long slender, much branched stems, leafy to base. Erect, excepting that branchlets are drooping at tips. Leaves opposite, about 2 in. long, decreasing in size towards base of branchlets. Flowers golden yellow, 2 in. in diameter, borne at tips of branchlets.

*lochroma tubulosa*—Tropical America, 10 ft.—Shrub, similar to *Cestrum* and *Habrothamnus*. Growth strong. Leaves rather dull, lighter beneath than above, about 4 in. long, slightly downy on both sides, not serrated, alternate. Flowers tubular, 1½ in. long, in clusters, purple.

*Jacaranda mimosaeifolia*—South America—Large flowering tree, symmetrical and elegant. Leaves large pinnate and finely divided, resembling those of the sensitive plant (*Mimosa*). Flowers blue, 2 in. long with long, bent swelling tube in pyramidal clusters of about 40 to 90 blossoms.

*Jacobinia Pohlana*—Brazil—Herb or sub shrub—Tropical shrubby herb. leaves 2 to 4 in. long, wavy margined, yellowish green above, lighter beneath, sometimes with a purplish tinge, veiny, smooth. Flowers bright crimson, tubular, an inch or so long, in clusters. Satisfactory conservatory plant. Grown from cuttings.

*Jasminum simplicifolium*—Australia—A climber, stems of late growth, black. Leaves simple, not pinnate, opposite, short stalked and glossy, about 3 in. or less long. Flowers white in terminal forked, many flowered clusters, fragrant with the odor of orange blossoms. Summer bloomer.

*Kentia Forsteriana*—"Flat Palm," "Thatch Leaf Palm"—Lord Howe's Island—Semi-dwarf palm, of slow growth. Leaves somewhat drooping, feather shaped, spineless, with several prominent veins, dark green. Very graceful. (Syn. *Howea Forsteriana*.)

*Lagunaria Patersonii*—Australia—Tree—About 12 ft. high, spotted very light brown on trunk and branches. Leaves egg-shaped, not toothed, dark green above, ashy gray beneath, 2 to 3 in. long. Flowers pale rose color, resembling *Hibiscus*, to which the genus is allied. Hardy in Southern California.

*Lantana camara*—Tropical America—Small Shrub—About 1 to 4 ft. high. Leaves rather thick, rough above, downy beneath, oval, about 2 in. long. Flowers verbenalike. Plant has rather a strong odor. Var. *nivea* fls. white outer ones bluish; Var. *sanguinea* fls. opening yellow, changes to bright red.

*Laurocerasus species*—See *Prunus*.

*Leptospermum laevigatum*—Aust. Tea. Tree—Australia—Tall shrub attaining 20 to 30 ft. Leaves light green, inclined to a slight bluish tint, smooth, ¾ in. long, larger at tip than at base, habit and appearance of leaf suggesting the well known Box, although not as symmetrical.

*Leptospermum lanigerum*—Australia—Shrub 5 ft.—Leaves, alternate, light green, ½ in. long, tipped with a small sharp point, same color above and beneath, quite dense on branches. Flowers large, white, extremely variable.

*Libocedrus decurrens*—Incense Cedar—Pac. Coast and inland to W. Nevada—Tree, 100 ft.—Handsome, erect, compact growing conifer, with a trunk sometimes 7 ft. in diameter at the base. Leaves bright glossy green, small, scale like, overlapping, sharp pointed; cones erect, borne singly, ¾ in. to 1 in. long. Valuable timber tree. Wood light and soft and straight grained, suitable for both inside and outside use.

*Libonia floribunda*—(Syn. *Jacobinia pauciflora*)—Sub-shrub, 2 ft.—Brazil—Branches cylindrical, short jointed, clothed with very fine downy hairs. Leaves short, small, elliptic, not serrated. Light green. Flowers 1 in. long, tubular, somewhat drooping, scarlet at the base, yellow at the tip, lips short. Free flowering, almost as hardy in So. California as *Fuchsias*.

*Ligustrum amurense*—"Privet," "Amoor River Privet"—Japan-China—Shrub 15 ft. with upright branches, spreading. Leaves light green, glossy above, smooth except midrib which is downy beneath. Leaves opposite, oval, blunt, ½ in. long. Flowers creamy white all along the branches. Excellent for hedges. Partly deciduous.

*Ligustrum ovalifolium aureo-marginatum*—CaliforniaPrivet—Japan—Shrub 15 ft., upright branches. Leaves oval or oblong, dark green edged yellow, glossy above, yellowish green beneath. Flowers white in clusters, rather compact, 3 in. long. Somewhat stiff habit, suitable for hedges.

*Livistona australis*—Australia—A fan leaved palm, grows to 40 to 80 ft. high. Leaves in dense crown, orbicular, 3 to 4 ft. in diameter, divided to about the middle into 40 to 50 narrow segments, often two cleft at tip, thorny leaf stem.

*Ligustrum Japonicum macrophyllum*—Japan-China—Tree, 20 ft.—Branches spreading. Leaves 3 in. to 5 in. long, oval, distinctly veined beneath, dark green, shining, opposite. Flowers white in open terminal clusters.

*Loquat*—See *Photinia Japonica*.

*Lycium europaeum*—Mediterranean region—10-12 ft.—Spiny shrub, spreading branches. Leaves 1 to 2 in. long, bright green above and beneath. Flowers purplish white, short stalks, purplish white, followed by red berries. Used in the latter state for decoration.

*Lycium horridum*—"Matrimony Vine"—So. Africa—3 ft.—Erect, spiny, much branched shrub; leaves smooth, stemless, blunt, about ¼ in. long. Flowers short stalked, small, whitish.

*Lyonthamnus floribundus asplenifolius*—Lyon's Ironwood—Santa Catalina and Santa Cruz and San Clemente—Small tree or shrub, 30 ft. with a trunk diameter of less than 1 ft. Bark separates into long, thin reddish brown strips which remain attached for some time before falling away. Leaves opposite, very closely resembling those of the Sweet-fern (*Coniptionia*). Flowers white, in clusters. Wood very hard. Tree is named after Wm. S. Lyon, a former officer of California State Board of Forestry.

*Magnolia grandiflora*—Bull Bay—N. C. to Texas—Tree, 80 ft.—Evergreen, pyramidal habit. Leaves thick and firm, glossy, dark green above, reddish beneath. Similar to the rubber trees (*Ficus*) in appearance, but leaves are of lighter texture and



color, with edges more waved. Flowers white, 7 to 8 in. in diameter, fragrant.

**Malvaviscus arboreus**—(Achania malvaviscus)—"Turk's Cap."—So. America—Shrub, 12 ft.—Leaves heart shaped, 2 to 3 in. long, alternate, toothed. Flowers bright scarlet, resembling those of abutilon, but provided with bracts. The old name of Achania refers to the flowers not opening. Sensitive to low temperatures.

**Melaleuca armillaris** (M. alba)—Australia—Shrub 15 to 30 ft.—Graceful drooping habit, bark gray, furrowed, deciduous in narrow strips. Leaves dense, needle like,  $\frac{1}{2}$  to  $\frac{3}{4}$  in. long, less than 1-16 in. wide. Flower clusters white, cylindric, over 2 in. long,  $\frac{3}{4}$  in. wide, white. Considered the best of the white flowered sorts. Suitable for general planting in shrubberies and borders. Hardy.

**Melaleuca ericifolia**—Australia—Large shrub or small tree—Slender shrub resembling heath. Bark thick and soft. Leaves alternate, not rigid, curved outward, needle-like, about  $\frac{1}{2}$  in. long. Flower clusters yellowish white,  $\frac{1}{2}$  to 1 in. long and  $\frac{3}{4}$  in. wide. Hardy.

**Melaleuca Huegelii**—Australia—Shrub, 6-10 ft.—Erect shrub, with firm pale bark. Leaves alternate, spirally arranged, and overlapping, stemless, very sharp pointed,  $\frac{1}{4}$  in. or less in length. Flower clusters white, dense, 1 to 5 in. long,  $\frac{3}{4}$  in. wide. One of the most curious of Melaleucas.

**Melaleuca hypericifolia**—Australia—Shrub—Tall shrub, with foliage resembling Hypericum. Leaves opposite, elliptical,  $\frac{3}{4}$  to  $1\frac{1}{4}$  in. wide, 1-6 to  $\frac{1}{2}$  in. or more wide, the midrib and many dots prominent beneath. Flower clusters rich red, 2 in. long and 2 in. wide, forming the bases of leafy branches. Very showy, and one of the best. Hardy.

**Melaleuca leucadendron**—"Cajuput Tree," "Punk Tree"—Australia—A large tree, bark thick and spongy, peeling off in layers. Leaves alternate, lance saped, tapering to each end, 2 in. to 4 in. or more in length and  $\frac{1}{2}$  in. to  $\frac{3}{4}$  in. wide. Flower spikes creamy white,  $1\frac{1}{2}$  in. to 4 in. long, 1 in. wide. This tree resembles several of the Acacias. Very resistant to salt water. Leaves of some forms yield cajuput oil, used in medicine.

**Melaleuca linariifolia**—Australia—Shrub—A rather rare species of the Bottle Brush, making a tall shrub with pale green foliage. Leaves opposite, rigid, sharp pointed, 1 in. to  $1\frac{1}{4}$  in. long,  $\frac{1}{8}$  in. wide, midrib prominent beneath. Flowers white or lilac, clusters small, but borne in several pairs. Somewhat fragrant.

**Melaleuca nesophila**—Australia—Shrub or small tree—Rapid grower, sometimes attaining 35 ft. in California. Bark thick and spongy, which peels off in long strips. Leaves alternate,  $\frac{1}{2}$  to 1 in. long, generally sharp tipped,  $\frac{1}{4}$  in. wide. Flowers pink or rose-color, in dense terminal heads, 1 in. or more in diameter; in cylindrical clusters.

**Melaleuca stypheloides**—Australia—Tree—Becomes a tall tree with thick spongy bark. Young shoots and flowers are silky, foliage being otherwise smooth. Leaves are alternate, with sharp, rigid tips, usually somewhat twisted,  $\frac{5}{8}$  in. long,  $\frac{1}{4}$  in. wide. Flowers creamy-white, dense 1 in. or 2 in. long, 1 in. wide, in cylindrical clusters.

**Myoporum acuminatum**—New Zealand—Shrub—Rather rapid growing shrub of tall habit. Leaves alternate, Oleander shaped, shining above, dotted with transparent spots. Flowers small, white.

**Myrtus communis**—"English Myrtle"—So. Europe—Shrub 3 to 10 ft.—Well known shrub of easy culture. Leaves lance shaped, sharp pointed, 1 or 2 in. long, pleasantly aromatic. Flowers white,  $\frac{1}{2}$  in. in diameter, fruit black. Both flowers and fruit fragrant. Thrives in any soil. Requires an abundance of water, never being allowed to dry out.

**Myrtus communis microphylla**—Small lvd. Eng. Myrtle—So. Europe—Similar to M. communis, but with leaves about 1-3 the size, and possibly more spreading in habit. Flg. June.

**Nandina domestica**—Japan—Shrub 5 ft.—Handsome, rather slow-growing, leaves much divided, leaflets large, light green in summer, turning to a bright red in the fall. Flowers white, in clusters, followed by crimson berries. Very showy in winter.

**Nerium Oleander**—"Oleander"—Medit. region—Tree, 30 ft.—Well known tree, with erect slender branches forming a narrow head. Bark brown, twigs smooth, light green, becoming brown. Leaves opposite, leathery, dark green, 2 in. to 6 in. long, taper pointed at both ends, not serrated. Flowers in clusters, in various shades of rose or purple. There is also a white variety.

**Oleander**—Nerium Oleander.

**Pandanus utilis**—"Screw Pine"—Madagascar—A tropical plant with sword shaped leaves in spiral tufts, whence the common name Screw Pine. Attains 60 ft. in height. Leaves bluish and erect with no variegation. Spines red.

**Pandanus Veitchii**—"Screw Pine"—Polynesia—A tropical plant with sword shaped leaves in spiral tufts, similar to P. utilis in form. Leaves margined with broad bands of white and armed with sharp spines. The roots gradually lift the plant out of the ground, making it appear on stilts.

**Persea gratissima**—"Alligator Pear," "Avocado," "Aguacate," "Ahuacate"—Central America—Tree 25 to 30 ft., bark light gray and fissured. Young twigs are yellow green, silky, becoming gray and smooth. Leaves oval, hairy when young, smooth when old, 4 to 7 in. long, flowers greenish, fruit pear shaped, green or purplish, eaten as a salad.

**Phoenix canariensis**—"Canary Island Palm," "Ornamental Date Palm"—Canary Islands—Resembles the commercial date palm, Phoenix dactylifera, but is more spreading and robust in habit, attaining a greater diameter of trunk. Leaves more numerous, finer and more graceful in habit. Grows to a height of 50 ft. or more.

**Phoenix dactylifera**—True "Date Palm"—Tall growing, erect palm of the "feather leaf" type. Attains a height of 100 ft. Trunk more slender than P. canariensis. Leaves coarser, and not so numerous. Bears the commercial date.

**Phoenix reclinata**—Feather-leaved palm. Leaves obliquely recurved near the end. leaflets rigid, those nearest base are often yellowish spines. The trunk is tall and slender, covered by persistent leaf bases.

**Phoenix Roebelenii**—Syn. P. humilis, var. Lourierii—A pygmy Phoenix and much used for decorative purposes. It never grows higher than a few feet. Leaves are of soft texture and gracefully drooping. It suckers freely and in wild state grows in clumps.

**Phoenix sylvestris**—"East Indian Wine Palm"—Wild Date Palm, India, 40 ft.—One of the hardiest of the Phoenix palms. Leaves grayish green, 7 ft. to 12 ft. long, more finely cut than in P. canariensis. Trunk 12 in. to 14 in. in diameter. Palm closely resembles the commercial date palm, P. dactylifera.

**Photinia Japonica**—"Loquat," "Japan Quince"—Japan—Tree, 20 ft.—Handsome tree of rather spreading habit; leaves large, oval, somewhat ridged, dark green above, lighter and downy beneath. Flowers white, in pendulous clusters. Fruit borne in large bunches, is orange red in color, downy, size of a small apple.

**Phytolacca dioica**—So. America—A very thick stemmed, soft wooded shrub, being heavy at base and tapering towards summit. Light colored bark. Leaves variable in size, nerves purplish, dropping soon after reaching maximum size, thus leaving foliage only at the ends of the branches.

**Pinus Canariensis**—Canary Islands—Tree, 80 ft.—Forms a broad round topped head, branches slender, branchlets yellowish. Leaves slender and pendulous, light green, 9 to 12 in. long. Cones 4 to 8 in. long. Handsome pine, much cultivated in California.

**Pinus Halapensis**—"Aleppo Pine"—Mediterranean region—Tree, 60 ft.—Forms an open round-topped head. Branches slender yellowish or light greenish brown. Leaves in 3's, slender, bluish green,  $2\frac{1}{2}$  to 4 in. long. Cones yellowish brown,  $2\frac{1}{2}$  in. to  $3\frac{1}{2}$  in. long. Trunk generally slender and bare for a considerable height. Foliage sparse, tufted on the ends of the branchlets.

**Pinus insignis**—"Monterey Pine"—(Syn. P. radiata)—Tree, 80-100 ft.—California—Thick, spreading branches, forming an irregular, open, round-topped head. Bark thick, furrowed, twigs brown or yellow. Leaves needle like, bright green, 4-6 in. long. Cones short stalked, bent backwards, scales thin, nearly flat, apex thickened and rounded, slightly ridged, terminated by a dark 4-sided knob, armed with a short thick spine; they are purple on the unexposed surface. Good for coast planting.

**Pinus pinea**—"Stone Pine"—So. Europe—Tree, 80 ft.—Forms a broad flat topped head in adult trees. Branches long, horizontally spreading. Branchlets pale brown. Leaves rigid, bright green, 5 in. to 8 in. long. Cones chestnut brown, 4 to  $5\frac{1}{2}$  in. long. Seed  $\frac{3}{4}$  in. long, and edible. Not hardy north.

**Pinus Torreyana**—"Torrey's Pine," "Del Mar Pine," "Soledad Pine"—San Diego County, California. Vicinity of Del Mar—Tree, 40 ft.—Thick spreading branches, forming a narrow round top. Bark about 1 in. thick, irregularly and deeply fissured into broad flat ridges, covered by large reddish scales. Twigs light green, becoming light purple, covered with brown fringed scales, becoming almost black. Leaves in groups of 5, rigid, dark green, 8 to 13 in. long. Cones 4 to 6 in. long, brown. Rare. Good for coast planting. Indigenous only to San Diego County and Santa Rosa Island.

**Pittosporum crassifolium**—"Karo"—New Zealand—Tree, 15 to 30 ft.—Tree or tall shrub with erect branches, bark dark brown or black, branchlets, leaf stems, under surface of leaves, and flowers, all clothed with a white or buff down. Leaves 2 to 3 in. long, oval, very thick and leathery, dark green and shining above, margins recurved. Flowers at the ends of the branchlets, small, almost black. Suitable for seaside planting. Very resistant to salt spray.

**Pittosporum eugenioides**—Tarata—New Zealand—Tree, 20 to 40 ft.—Round headed tree, foliage rather sparse, glossy, very light yellowish green in color. Leaves 2 in. to 4 in. long,  $\frac{3}{4}$  to  $1\frac{1}{4}$  in. wide, elliptical in shape, margin quite wavy. Flowers numerous, in terminal clusters, small, greenish yellow. Planted singly, but more often used for hedges.

**Pittosporum heterophyllum**—W. China—Shrub—Low, half reclining shrub, foliage. Leaves 1 or 2 in. long,  $\frac{1}{2}$  to 1 in. wide, lance shaped, almost stemless, not serrated, smooth. Flowers few, at the ends of the short branchlets, yellow,  $\frac{1}{4}$  in. long. Drought resistant.

**Pittosporum phillyraeoides**—Australia—Tree, 20 ft.—Evergreen tree resembling the weeping willow in habit. Leaves light green, 2 in. to 3 in. long,  $\frac{1}{4}$  in. wide, tapering towards both ends, tips somewhat curved under. Flowers small, solitary, fragrant, yellow. Very drought resistant. In its native country, the seeds are made into a sort of bread.

**Pittosporum rhombifolium**—Australia—"Queensland Pittosporum"—Tree, 60 of pyramidal habit. Leaves 3 in. to 4 in. long, 1 to 2 in. wide, rhomboidal in outline, irregularly toothed, smooth and shining. Flowers numerous,  $\frac{1}{8}$  to  $\frac{1}{4}$  in. long, in clusters, followed by bright yellow berries. Valuable for both avenue and lawn planting.

**Pittosporum tobira**—"Japanese Pittosporum"—China and Japan—Shrub, 10 ft.—Spreading shrub of globular habit. Leaves dark green, shining above, lighter beneath, very blunt and broadest at the tips, thick and leathery, margins curved under, smooth. Flowers in clusters, at the ends of the branchlets, white, with an odor resembling orange blossoms. Suitable for seashore planting. There is a varieg. form with thinner leaves, variegated with white.

**Pittosporum undulatum**—"Victorian Box"—Australia—Tree, 40 ft.—Round headed tree, but more often pruned as a shrub or for hedge purposes, for which it is very suitable. Foliage dense, dark green. Leaves 3 in. to 5 in. long, 1 in. to 2 in. wide. Shining, smooth, crowded on the branchlets, not serrated, margins wavy.

**Plumbago capensis**—So. Africa—Shrub, 15 to 20 ft.—Spreading or climbing shrub with clean, smooth foliage. Leaves usually alternate, not serrated, and of varying sizes, light green in color. Flowers pale blue, Phlox like in shape.



**Plumbago capensis alba**—Cape of Good Hope—Shrub—Identical with *P. capensis* except in the color of the flowers, which is white.

**Poinsettia pulcherrima**—Xmas Flower—(Syn. *Euphorbia pulcherrima*)—Mexico—Shrub, 6 ft. or more—Well known shrub grown extensively in So. California. Branches and trunk are milky, leaves vary from 3 in. to 6 in. long, and often drop before the flowers are mature. These shrubs are grown for the showy red bracts surrounding a rather inconspicuous flower. Winter.

**Polygala apopetala**—Lower California—Shrub, 2 to 3 ft.—Small shrub, branches slender, downy. Leaves slender, lance shaped, not serrated, alternate, short stemmed, nearly smooth. Flowers large, pink, borne on slender stems  $\frac{1}{2}$  in. or more in length.

**Polygala dalmaisiana**—South Africa—Shrub—Small shrub, of dense globular habit and very slender branches. Leaves light green, oval 1 in. long by  $\frac{1}{2}$  in. wide, opposite. Flowers magenta pink. Always in bloom.

**Prunus caroliniana**—“Wild Orange,” “Mock Orange”—So. Carolina to Flor. and Texas—Grows to about 35 ft. in height, with a trunk diameter of about 1 ft. Bark thin, gray, smooth, or slightly ridged, young twigs smooth, green, becoming red or red brown. Leaves oval, leathery, 2 to 5 in. long, 1 to  $1\frac{1}{2}$  in. wide, bluntly toothed, deep green and smooth above, pale and slightly hairy beneath, especially on the venation. Leaf stems short and grooved. Flowers cream colored, fruit black.

**Prunus ilicifolia integrifolia**—Catalina Island—“Catalina Cherry”—Native to the islands near the coast of Southern California. Related to the native cherry. Grows to a height of 35 ft. with a trunk diameter of about 18 in. Bark thick and gray. Young twigs smooth, yellow green, becoming brown. Leaves leathery, oval, about 3 in. long, bright green and shining on the upper side, paler and dull beneath. Flowers white, in dense clusters. Fruit round and purple. March to May.

**Prunus laurocerasus**—“Eng. Laurel,” “Cherry Laurel”—(Syn. *Cerasus laurocerasus*)—Shrubby tree, 6 to 10 ft., evergreen foliage. Leaves leathery and glossy, short stalked, mostly oval or lance shaped leaves, remotely toothed, 2 to 4 glands near base. Flowers small white in clusters. One of most popular of *Prunus* family.

**Prunus lusitanica**—(Syn. *Cerasus lusitanica*)—“Portugal Laurel”—Portugal—Tree, 10 to 20 ft.—Small tree, often used for tub culture, for which purpose it may be compared with the Bay (*Laurus nobilis*). Leaves are thick and leathery, oval or lance shaped, sharply serrated. Flowers white, in large clusters. Fruit oval, small, nearly black.

**Prunus pseudo-cerasus**—(Syn. *Cerasus pseudo-cerasus*)—“False Cherry,” “Japanese Cherry”—China and Japan—Tree, 10-20 ft.—Deciduous tree, with downy branches and leaf stems. Leaves 3 in. to 4 in. long,  $1\frac{1}{2}$  in. broad, serrated, oval in shape, sharply pointed. Flowers somewhat double, rosy white, about 1 in. in diameter, borne in clusters. Fruit pale red, edible.

**Raphiolepis ovata**—“Japanese Hawthorn”—Japan—Shrub, 10 ft.—Compact, spreading, quite slow growing. Leaves of medium size, rounded, dark green, forming rosettes at tips of the branches, shining, leathery. Flowers small, pinkish white, in compact clusters. A handsome shrub.

**Rhapis humilis**—China—A fan leaved palm growing in clumps. The reed like stems are 2 to 4 ft. high. Leaves semi-circular in outline segments rarely more than 10, the stalks are very slender.

**Rhopalostylis sapida**—Areca sapida—New Zealand—A feather-leaved palm. Stem 6 to 10 ft. high by 6 to 8 in. in diameter. Leaves 4 to 6 ft. long, pinnate, narrow, linear segments. Nerves, midrib and leaf stem covered with small grey scales.

**Robinia pseudacacia**—“Black Locust,” “Common Locust,” “False Acacia”—North America—Tree, 70 ft.—Native American tree of very rapid growth. Leaves 8 in. to 14 in. long, on slender stems, covered with a very fine down, leaflets oval, covered at first with a fine silvery down, when mature are very thin, dull dark green above, pale beneath, nearly smooth. Flowers in long loose clusters, dark red, pea shaped. Valuable as timber. June.

**Sabal palmetto**—“Cabbage Palmetto”—Southern states—20-80 ft.—Fan palm, leaves sometimes 5 to 8 ft. long, and 6 ft. wide, often wider than long, the numerous narrow segments 2 cleft at the apex and somewhat drooping, rather dull green. Leaf stalks stout often as long as the blades, concave on the upper side with sharp edges. Wood is soft and spongy, durable under water. Terminal buds are boiled and eaten like cabbage, hence the common name.

**Schinus molle**—“Australian Pepper Tree,” “California Pepper Tree,” “Peruvian Mastice Tree”—Brazil and Peru—40 ft.—Well known and widely cultivated in Southern California. Leaves pinnate with acute leaflets, very pungent. Flowers small, numerous, yellowish green, followed by large clusters of rose colored berries, the size of a pea, borne, however only on the trees bearing the female flowers, which are borne on separate trees from the male blossoms.

**Schinus terebinthifolius**—“Brazilian Pepper Tree”—Brazil—40 ft.—Tree of rapid growth, spreading habits. Leaves somewhat similar to *S. Molle*, but with much broader leaflets, aromatic. New growth tinged pink. Flowers greenish white.

**Selaginella denticulata**—Mediterranean region—“Club Moss”—Plant matted. Leaves of the lower plane, slightly spaced, margins toothed, but a microscope is necessary to see the serrations. The upper plane of leaves lying lengthwise of stem and about  $\frac{1}{2}$  length of lower leaves.

**Solanum capsicastrum**—Brazil—Shrub, 1 to 2 ft.—Dwarf, branching shrub, similar to *S. pseudo-capsicum*. Leaves, alternate, arranged in pairs, one leaf of each pair being from 2 in. to  $2\frac{1}{2}$  in. long, and the other about half that size. Flowers white, fruit scarlet,  $\frac{1}{2}$  in. in diameter. Very ornamental as a pot plant.

**Solanum pseudo-capsicum**—“Jerusalem Cherry,” Old World—Shrub, 4 ft.—Branching shrub, grown for its ornamental fruit. Leaves 4 in. to 5 in. long,  $\frac{1}{4}$  in. to  $\frac{1}{2}$  in. broad, light green in color, shining, not serrated. Flowers small, white, star-

shaped. Fruit scarlet or yellow,  $\frac{1}{2}$  in. in diameter. Borne singly. Sometimes used for hedge purposes.

**Spartium junceum**—“Spanish Broom”—Mediterranean region and Canary Isles—Shrub, 6 to 10 ft.—Almost everblooming shrub of upright habit. Branches cylindrical, bright green, nearly leafless. Flowers pea shaped, yellow, fragrant.

**Sterculia acerifolia**—“Flame Tree”—(Syn. *Brachychiton acerifolium*)—Australia—Tree, 60 ft.—Rather slow growing tree with conical shaped trunk. Leaves resembling those of the maple, but several times as large. Flowers brilliant scarlet.

**Sterculia diversifolia**—Bottle Tree—(Syn. *Brachychiton diversifolium*)—Australia—Tree, 40 ft.—Erect growing tree with clean, glossy foliage. The decided conical shape of the trunk suggests the common name of Bottle Tree. Leaves very variable in habit, sometimes entire, sometimes two or three lobed.

**Strelitzia augusta**—“Bird of Paradise Flower,” “Bird’s-tongue Flower”—South Africa—Identical with *S. Nicolai* in appearance, except that the flowers are white.

**Strelitzia Nicolai**—“Bird of Paradise Flower,” “Bird’s tongue Flower”—South Africa—Perennial Herb, 15 ft.—Showy, tropical looking plant, with leaves somewhat resembling Banana in form, 2 or 3 ft. long, borne on stems 4 to 6 ft. in length. Flowers blue, resembling a bird in appearance, hence the common name.

**Tamarix Africana**—Tamarisk (Syn. *T. parviflora*)—S. E. Europe—Shrub, 15 ft.—Very similar to *Tamarix plumosa*, but with more strict branches and lighter green foliage.

**Tamarix plumosa**—(Syn. *Tamarix juniperina*)—Shrub or small tree, 15 ft.—With slender branches. Leaves green and closely compressed to stem, giving the effect of a Juniper, hence the specific name, *juniperina*.

**Taxodium distichum**—“Bald Cypress,” “Deciduous Cypress”—Eastern U. S.—Tree, 12 ft.—A very graceful, deciduous conifer. Foliage light green, turning to red in autumn. Leaves in two rows, flat needle shaped,  $\frac{1}{2}$  in. long, feathery in appearance. Cones roundish, size of a pigeon’s egg. Commercially, this tree is very valuable, being used for practically all timber purposes, especially shingles.

**Teucrium fruticans**—“Tree Germander”—So. Europe—Evergreen shrub, leaves opposite, oval, not serrate, downy white beneath,  $\frac{1}{2}$  in. long,  $\frac{1}{4}$  in. wide, rather sparse, very short stemmed. Flowers blue, bracts whitish, and larger than the petals.

**Umbellularia Californica**—“Spice Tree,” Calif. Sassafras,” “Balm of Heaven,” “Calif. Laurel”—Evergreen tree, 20 to 30 ft. or higher, with erect slender branches, conical outline and dense foliage. Leaves alternate, lance shaped, dark green, highly aromatic. Flowers small, greenish, fragrant. Fruit yellowish green at first, becoming purple when ripe. Very valuable timber for interior finishing, furniture, etc.

**Veronica buxifolia**—“Box Leaved Veronica”—New Zealand—Shrub, 2-3 ft.—Small shrub of upright, compact growth. Leaves smaller than the other species, being about  $\frac{1}{4}$  in. long, somewhat resembling the well known Box (*Buxus*). Flowers white, in small spikes, but very numerous.

**Veronica elliptica**—New Zealand—Shrub or small tree—Rather variable in habit, sometimes dwarf and shrubby, sometimes attaining 20 ft. in height. Leaves close-set, oval, about  $\frac{1}{2}$  in. long, light green. Flowers tinted violet when in bud, opening pure white. This is one of the largest flowered species of the genus.

**Veronica “Purple Queen”**—New Zealand—Very like the *V. spec. imp.*, but with smaller leaves and the spikes of flowers are smaller. The individual flower is blue with white center.

**Veronica speciosa imperialis**—New Zealand—Bushy, branching shrub, 3 to 6 ft. high, rather stout and smooth. Leaves very short stalked, rather thick, smooth, prominent groove on upper side along the midrib, 2 or 3 in. long. They are crowded and in two ranks. Flowers in dense spikes of crimson purple, in axils of leaves at summit of branchlet.

**Viburnum tinus**—“Laurestinus”—South Europe—Shrub, 10 ft.—Bushy shrub, with somewhat hairy branches. Leaves oval, sharp pointed, dark green, shining above, downy beneath on the veins only, 2 to 3 in. long. Flowers in clusters, white, pinkish when in bud, slightly fragrant.

**Washingtonia filifera**—“Desert Palm,” “Fan Palm,” “Native Cabbage Palm”—California—Native fan palm, attaining 75 ft. in height—Trunk diameter 2 to 3 ft. Covered with a thick reddish brown scaly rind, and clothed with a thick thatch of dead pendant leaves, from the living places, nearly to the ground. Leaves 5 to 6 ft.; 4 to 5 ft. wide, light green, stems 4 to 6 ft. long, fan shaped. Flowers solitary, nearly stemless, slightly fragrant. Fruit 1-3 in. long, used as food by the Indians.

#### VINES AND CLIMBERS

**Akebia quinata**—China and Japan—Twining shrub, climbing 12 ft. or more. Leaflets 5, oval, 1 to 3 in. long. Flowers fragrant, the pollen bearing are rosy purple; the seed bearing are larger and purplish and brown.

**Allamanda grandiflora**—Brazil—Handsome greenhouse climber. Stem wiry. Leaves thin, ovate lance shaped, usually in threes. Flowers large, funnel shaped, lemon yellow.

**Ampelopsis quinquefolia**—“Woodbine,” “Virginia Creeper,” “American Ivy”—North America—One of the best known of deciduous climbers. Leaves large, composed of five leaflets, smooth on both surfaces, toothed. Berries dark purple, borne on red stalks. Foliage turns scarlet early in the fall. Useful for brick, stone or wood walls. Clinging by means of tendrils, thus rendering a trellis unnecessary. The bark and twigs of this plant are used medicinally.

**Ampelopsis sempervirens**—A vine with evergreen foliage. Leaves in fives and toothed and much resembling those of *A. quinquefolia*, except that they are much smaller and do not drop in fall.

**Ampelopsis Veitchii**—(Syn. *A. tricuspidata*)—Boston Ivy, Japan Ivy—Japan—High climbing with short stout tendrils. Leaves are mostly 3 lobed and glossy, in the



fall turning red and dropping later, but for one month or so. Does best on north walls.

*Ampelopsis Veitchii variegata*—Similar to *A. Veitchii*, but with variegated leaves.

*Asparagus medeoloides*—"Smilax"—Africa—Well known twining herb with small bright green smooth shining leaves, oval in shape. Flowers small greenish, fragrant. Much used for decoration.

*Asparagus myriocladus*—Natal—Slender woody plant. Tall curving white stems with short lateral branches, bearing interrupted clumps of numerous needle-like leaves. Flowers white, inconspicuous.

*Asparagus plumosus*—So. Africa—Well known climber with fern-like foliage. Much used for cutting, as it will remain green for several weeks after being cut. Flowers greenish white, inconspicuous, followed by black berries; fairly hardy in sheltered locations. Popularly known as Asparagus Fern.

*Asparagus Sprengeri*—So. Africa—Evergreen climber, entirely distinct from most of the other species. Leaves about 1 in. in length, needle-like, somewhat flattened, bright green. Flowers greenish white, inconspicuous, followed by clusters of bright red berries. Useful for hanging baskets.

*Begonia capreolata*—(Syn. *Beg. Crucigera*)—"Cross Vine"—No. America—Strong growing ever green climber. Leaves pinnate, leaflets oblong, heart-shaped, margins not cut. Flowers tubular, orange. Climbs by tendrils. Hardy.

*Bignonia capreolata atro sanguinea*—No. America—A strong evergreen climber, often attaining 50 ft. or more. Leaflets are stalked, oblong, heart-shaped. Flowers tubular, in many 2 to 5 fld. short stemmed clusters, deep cardinal.

*Bignonia Cherere*—(Syn. *B. buccinatoria*)—Guiana—Evergreen climber, with tendrils. Leaflets are stalked and oval shaped, 2 to 3 in. long. Flowers long tubular, blood red, yellow at base.

*Bignonia grandiflora*—See *Tecoma grandiflora*.

*Bignonia Tweediana*—Argentina—Showy evergreen climber. Leaves borne in pairs, lance shaped, sharp pointed, stems downy. Flowers lemon yellow, tubular. Generally broader than long. Grows very high and without a trellis. April.

*Bignonia venusta*—Brazil—Very showy, rapid growing climber. Leaves composed of 3 leaflets, dark green, rather glossy. Flowers in numerous clusters, bright orange, tubular in shape, about 3 in. long. Somewhat tender when young. Feb. 1 to April 1.

*Bougainvillea spectabilis*—Syn. *B. Braziliensis*—"Paper Flower"—So. America—Handsome evergreen climber of rapid growth. Grown for its showy, light magenta colored bracts, popularly spoken of as the flowers, the real flowers being small and inconspicuous, yellowish in color. Foliage is clean and glossy. Very widely grown in Southern California.

*Bougainvillea spectabilis lateritea*—"Paper Flower"—So. America—Although a variety of *B. spectabilis*, it is very much more difficult to propagate, and consequently rarer. After becoming well established it makes a fairly rapid growth and is about as hardy as the type. Bracts bright red in color.

*Campsidium valdivianum*—Syn. *Tecoma valdiviana*—Chile—Strong growing climber. Leaves pinnate, leaflets variable in size, glossy. Flowers tubular about 1 in. long in clusters, buff.

*Clematis montana grandiflora rubra*—Himalaya—Evergreen climber, often 15 to 20 ft. Leaves in threes with oblong toothed leaflets. Flowers several in axils, resembling the white anemone, parts in fours, pink and 3 to 4 in. across.

*Clematis paniculata*—Japan—Well known climber. Deciduous. Clings by twining leaf stems. Leaves pinnate, not cut, oval, sharp pointed. Flowers, small, white, fragrant, numerous. Fall.

*Cobaea scandens*—"Cup and Saucer Vine"—Mexico—Very rapid growing evergreen climber. Leaves composed of 3 pairs of leaflets, not cut, elliptical in shape. Flowers bell shaped, violet purple, both style and stamens protruding, calyx green forming saucer.

*Ficus pumila*—(Syn. *F. repens*)—"Climbing Fig"—China and Japan—Handsome evergreen climber of fairly rapid growth. Clings to walls by tendrils somewhat after the manner of Ivy. Leaves are of two types, small dark green, heart shaped, and a larger, more elliptic type. Both types on the same plant, but the larger one does not develop until after the plant is about 2 years or more of age. In variety minima, of this species, the size of the leaves does not change in older plants, but remains one inch in length.

Leaves heart shaped, 3 to 5 lobed, the middle lobe longest. Flowers 1½ to 2 in. wide. Violet or blue.

*Ficus repens*—See *Ficus pumila*.

*Hardenbergia monophylla*—Australia—Evergreen twiner. Leaflets solitary, 2 to 4 in. long, mostly oval but sometimes narrower. Flowers pea like, small, rather numerous, in long narrow clusters and various colors. January.

*Hardenbergia monophylla alba*—Australia—A white flowering variety of *H. Monophylla*. January 15-April 1.

*Hedera helix*—"English Ivy"—So. Europe—Well known, common Ivy, with dark green, shining 3 or 5 lobed, leathery leaves, clinging to walls by air roots. Flowers (seen only in old plants) greenish, followed by clusters of black berries.

*Hoya carnosa*—"Wax Flower"—Queensland—Handsome greenhouse climber, succeeding best in a moist atmosphere. Leaves fleshy, oval, acute pointed, glossy. Flowers somewhat star shaped, small pinkish white, very wax-like in appearance, borne in pendulous clusters. Summer.

*Ipomoea Leari*—Pharbitis Leari—"Blue Dawn Flower"—Ceylon—Very rapid grower, often 30 to 40 ft., inclined to be shrubby at the base. Leaves 3 to 6 in. long, heart shaped, generally not serrated, but sometimes slightly 3 lobed. Flowers borne in clusters of 12 to 30, opening in succession; 4 to 5 in. long, broadly bell-shaped. Color varying from deep lilac to dark or coppery purple. Perennial.

*Ipomoea bonariensis*—"Common Morning Glory"—Tropical America and Africa—Tuberous rooted species, stem branching, tinged purple and covered with short hairs.

Leaves heart shaped, 3 to 5 lobed, the middle lobe longest. Flowers 1½ to 2 in. wide. Violet or blue.

*Ipomoea quamoclit*—(Syn. *Quamoclit vulgaris*)—"Cypress Vine," "Indian Pink"—Trop. America—Annual species, distinct by reason of its finely cut, fern-like foliage. Attains a height of from 10 to 20 ft. Flowers star shaped, scarlet. A very ornamental species.

*Jasminum azoricum*—Climbing Shrub—Azores—Evergreen climber. Leaves evergreen, opposite, composed of three leaflets, the two side ones often smaller. Flowers small, white.

*Jasminum grandiflorum*—(Catalonian Jasmine)—India—Nearly erect growing species, the branches drooping, smooth or nearly so. Leaves pinnate, opposite, composed of two or three pairs of leaflets, usually terminating in a small point. Flowers pink when in bud, white when open, star shaped, very double, larger than the common Jessamine (*J. officinale*). Fragrant and almost everblooming.

*Jasminum humile*—(Italian Yellow Jasmine)—(Syn. *J. revolutum*)—Climbing Shrub—India—Very spreading, requiring a trellis or other support, attaining a height of 20 ft. Branches smooth. Leaves alternate, pinnate, leaflets slender and pointed. Flowers bright yellow, in open clusters. Fragrant.

*Jasminum ligustrifolium*—Evergreen climbing shrub, of dense compact growth, leaves very closely resembling Privet, glossy, light green in colors. Flowers creamy white, fragrant.

*Jasminum nudiflorum*—"Winter Jasmine"—China—Climbing Shrub—Well known hardy deciduous climbing shrub. Branches flexible, green. Leaves composed of three very small leaflets. Flowers yellow, solitary, borne oppositely all along the stem. Winter.

*Lonicera Japonica Chinensis*—"Chinese evergreen honeysuckle"—Japan and China—Very rapid growing climber, evergreen in the South. Old leaves dull green, new growth reddish purple, both on the branches and backs of leaves. Flowers white inside, purplish outside, changing to yellow.

*Lonicera Japonica var. Halliana*—"Halls Honeysuckle"—China and Japan—Evergreen climber, habit same as *L. Japonica Chinensis*. Leaves bright green above, grayish green beneath, not purplish. Flowers white, changing to yellow. April.

*Lonicera periclymenum var. Belgica*—"Woodbine," "Belgian Honeysuckle"—Climbing several ft. high or shrubby. Leaves all distinct 1 to 3 in. long, dark above, pale beneath. Flowers bright red outside. April.

*Lonicera sempervirens*—"Trumpet Honeysuckle"—North America—Evergreen climber, of rather slow growth. Leaves oval, bluish beneath, smooth, the upper pair grown together, with the stem apparently growing through them. Flowers scarlet outside, yellow inside, about 1 in. long. Summer.

*Lotus corniculatus*—"Bird's Foot Trefoil"—Similar to *L. peliorhynchus*, excepting that it bears bright yellow flowers, fading to orange.

*Lotus peliorhynchus*—(Syn. *L. Bertholetii*)—Canary Islands—Trailing plant much used for hanging baskets, window boxes, rockeries, etc. Leaves are very slender and grasslike, ½ in. to ¾ in. long, stemless, borne on slender, gray in color. Flowers red, clustered towards the ends of the branches, 1 in. long, somewhat beak shaped.

*Lygodium Japonicum*—(Syn. *Ophioglossum Japonicum*)—"Japanese Climbing Fern"—The fronds continue to lengthen, thus are enabled to climb like a vine. The pinnules are 4 to 8 in. long and nearly as wide, deltoid in shape.

*Lygodium scandens*—Climbing Fern—Very similar in appearance to *L. Japonicum*. The pinnules are, however, much narrower.

*Mandevillea suaveolens*—"Chilean Jasmine," "Climbing Shrub"—Buenos Ayres—Tall climber. Leaves opposite, heart shaped, bluish underneath. Flowers white, in clusters about two inches across. May.

*Mesembryanthemum acinaciforme*—"Ice Plant"—South Africa—Succulent, trailing herb, leaves opposite, fleshy, scimitar shaped, 2 to 3 in. long, opposite. Flowers purple, 4 in. in diameter. Bears the largest flowers of the genus.

*Mesembryanthemum floribundum*—Cape of Good Hope—Succulent herb, branches 6 in. or less in length. Leaves less than 1 in. in length. Very narrow, cylindrical, curved. Flowers small. ½ in. to ¾ in. in diameter, rose color. Excellent for terraces, etc. April 1.

*Mesembryanthemum geminatum*—Succulent herbs, prostrate. Leaves opposite completely clasping stem, 1 to 1½ in. long, triangular. Flower small and white. The petals many and strap shaped as in other *Mesembryanthemums*.

*Monstera deliciosa*—(Syn. *Philodendron pertusum*)—A thick stemmed greenhouse climber. Leaves 1 to 2 ft. long, leathery, deeply cut and perforated. As the plant climbs long, thick aerial roots are put forth. The name *Monstera deliciosa* means delicious monster.

*Muehlenbeckia complexa*—"Wire Vine," "Maidenhair Vine"—Very strong growing evergreen twiner. Branches, slender, black, wirelike. Leaves about size and shape of Maiden Hair Fern. Flowers greenish, inconspicuous.

*Muehlenbeckia platyclados*—(Syn. *Coccoloba platyclada*)—Erect shrubby plant with broad flat jointed, smooth branches which take the place of leaves. Leaves very few or none. Flowers white in small clusters. Spring.

*Passiflora coerulea*—Passion Flower—Slender but strong growing vine with tendrils. Leaves divided nearly to the base into 5 lance shaped, pointed segments. Flowers 3 to 4 in. across, greenish white, the thread-like rays in two series, blue at tip, white in middle and purple at base. The pistil purple. The early Spanish and Italian considered the flower as representing the implements of crucifixion, whence the name Passion Vine. The 10 petal and sepal divisions represented the ten apostles present at the crucifixion, the colored fringed crown represented the crown of thorns; the five stamens represented the five wounds; the 3 div. to the pistil represented the three nails used; the coiling tendrils represented the cords or scourges, and the digitate leaves the hands of the persecutors. Early Summer.

*Philodendron asperatum*—Climbing Philodendron—Brazil—A dark green, short jointed



greenhouse climber, with short aerial roots. Leaves are cordate-ovate and variable in size, 3 in. to about 8 in. across; the upper are the largest.

**Rhynchospermum Jasminoides**—See *Trachelospermum*.

**Rosa laevigata**—Cherokee Rose—(Syn. *R. Sinica*)—China, Formosa, Japan—Well known climber, grown extensively throughout the south, but not hardy north. Flowers, single, resembling the wild rose, white, pink or red, the last two being more recently introduced varieties. Spring and Summer.

**Salpichroa rhomboida**—Argentine Republic—Half hardy, somewhat woody climber. Leaves ovate rhomboid. Flowers white, small, usually less than 1-3 in. long, resembling in appearance the Lily of the Valley but solitary and not in clusters.

**Smilax**—See *Asparagus medeoloides*.

**Solanum jasminoides**—“Potato Vine”—South America—Well known vine, rapid grower. Leaves 2 to 2½ in. long, flowers star shaped, white, in profuse clusters. Evergreen. Flowers continuously in Southern California.

**Solanum Rantonetti**—Erect half climbing, bushy plant, 3 to 5 ft., glabrous. Leaves, lance ovate, alternate. Flowers large, violet blue, 2 to 5 in clusters at axils.

**Solanum Wendlandii**—Costa Rica—Strong, tall, climbing plants with a few prickles. Leaves variable, the uppermost simple, the others lobed or in threes, with the terminal leaflet largest. Flowers in large clusters of pale blue, 2½ in. or so across.

**Sollya heterophylla**—“Australian Bluebell Creeper”—Australia—Graceful ever green climber. Leaves variable as to shape, but not cut or lobed. Flowers, bell-shaped, deep blue, ½ in. long, numerous. May.

**Tecoma capensis**—“Cape honeysuckle”—Climbing shrub. Leaves pinnate, leaflets 7 to 9 ovate, pointed, coarsely toothed, strongly nerved and glossy. Flowers tubular, curved, wide open, narrow mouth, orange red, about 2 in. long.

**Tecoma grandiflora**—“Chinese Trumpet Creeper”—Climbing shrub. Leaves pinnate, leaflets usually 7 to 9, ovate, lance shaped, toothed, 1½ to 2½ in. long. Flowers in terminal clusters, funnel form, bell shaped, scarlet, about 2 in. across.

**Tecoma jasminoides**—Australia—Evergreen climbing shrub. Leaflets of the pinnate, leaves 5 to 9, lance ovate, glossy. Flowers funnel shaped with wide spreading segments, rosy pink in the throat and pure white segments. April 15.

**Tecoma jasminoides rosea**—Vine same as *T. jasminoides* in all respects except it has larger flowers, pink segments with deep purplish red throat. April 15 to Nov. 15.

**Tecoma jasminoides alba**—Same as *T. jasminoides* but with white flowers.

**Tecoma stans**—“Yellow Elder”—Upright shrub. Leaves pinnate, 5 to 11, leaflets 1½ to 4 in. long, toothed. Flowers yellow in large terminal clusters, tubular with wide spread mouth.

**Trachelospermum jasminoides**—(Syn. *Rhynchospermum jasminoides*)—“Star Jasmine”—China—Climbing shrub. A Jasmine like vine. Leaves short stalked and ovate, lance shaped. Flowers on long stalks, the jasmine like flowers with segments rolled and slightly twisted. Early summer.

**Tradescantia fluminensis**—“Wandering Jew”—Central Brazil—Trailing plants with glossy stems and leaves and conspicuous nodes. Leaves ovate, pointed, sheathing the stem for ¼ in., fine hairs at base. Flowers white, 3 sepals and 3 petals.

**Vinca major**—“Periwinkle”—Band Plant—Hardy trailing herb. Leaves about 2½ in. long, glossy. Flowers blue, about 1½ in. across, five lobed. Grows easily and makes a good ground cover.

#### HERBACEOUS AND MISCELLANEOUS

**Agave Americana or Aloe**—Leaves used medicinally; yields pulque. Fiber is used in cordage making. See Collander's catalog for Agaves, etc.

**Agapanthus umbellatus**—“African Lily,” “Blue Lily of the Nile”—Cape of Good Hope—Showy evergreen, herbaceous plants, tuberous rooted, stemless. Leaves strap shaped, somewhat fleshy. Flowers lily-like, bright blue, borne in large clusters in a stalk 2 or 3 ft. long. Thrives better in moist location. There are several other varieties of this species, including one with white flowers. Late spring or early summer.

**Agathoea coelestis**—“Blue Marguerite”—South Africa—A sub shrub, spreading—Leaves roundish ovate, opposite, rather rough. Flowers sky blue, Marguerite-like, numerous, with long stalks.

**Agave Americana**—“Century Plant”—South America—Well known. Leaves borne in rosettes of thirty or forty, bluish green, 3 to 6 ft. long, 6 to 9 in. broad, somewhat concave, point 1 to 2 in. long, dark brown, spines all along the leaves, also brown tipped. Flowers borne in clusters around a panicle, sometimes 30 ft. high. Plant dies after it has flowered.

**Aloe variegata**—Cape of Good Hope—Well known variegated form. Leaves close, V-shaped, sharp pointed, 4 or 5 in. long, 1 in. broad, dark green, margined white, both margin and keel somewhat warty, both sides of leaf mottled with pale blotches, flowers reddish, borne in short, rather loose clusters.

**Alternanthera amoena**—Low compact herb, much used for ribbon borders, etc. Leaves long, lance shaped or oblong, lance shaped, sometimes elliptic, very short stems, the under side mostly green, but veined and blotched with red and orange. Flower heads insignificant.

**Althea rosea**—“Hollyhock”—Tall, spire shaped stem. Leaves large and rough with prominent veins, rounded, heart shaped, with uneven margin. Flowers large, silky texture, malva like in tall leafy spikes.

**Amaryllis**—Red Hybr—Bulbous plants with stout flower stalks, which rise and bear the flowers before the leaves appear. Leaves resemble other bulb plants but more abrupt tip. Flowers 5 to 12 in cluster, tube short, segments oblong or lanceolate. March 15.

**Anthericum variegatum**—(Lily family)—Syn. *Chlorophytum elatum*—Fleshy white root. Leaves in basal clusters, grass-like with light green and yellow stripes. The flower stalks act also as stolons bearing roots and leaves at their tips. Flowers are white, ½ in. long with segments rolled back.

**Antirrhinum majus**—“Common Snapdragon”—1 to 3 ft. high. Leaves oblong or lance-shaped. Flowers large and tubular with spreading irregular lobes, in long terminal spike. The lips are closed quite tightly and about the only insect that can enter is the bumble bee.

**Aquilegia**—California hybr.—“Columbine”—Hardy perennial herbs of Northern Hemisphere, with a number of stems. Leaves 3 parted and lobed, 1 to 3 in a cluster. Flowers on tall stalks, 5 long slender spurs. Scarlet and yellow parts. April 1.

**Aquilegia chrysantha**—“Columbine”—Hardy perennial herb. Leaves 3 parted, the parts divided in 3 parts again. Flowers, many 2 to 3 in. across, parts are pale yellow tinted claret, the parts with the spurs are deep yellow. Spurs are divergent and 2 in. long. April 1.

**Aralia Veitchii**—Tender evergreen plants. Leaves digitate, 9 to 11, leaflets very narrow, indulated, shining above and red beneath. Flowers in umbellate clusters, greenish white and small.

**Arundo donax**—“Vineyard Cane”—Tall, leafy perennial grasses, resembling bamboos, 5 to 15 ft. or higher. Leaves broad, grass like, gracefully drooping. Also a variegated form. Roots are used medicinally.

**Begonias**—Watery herbs or shrubs, with fibrous, tuberous or semi-tuberous roots. Leaves more or less unequal sided and variable in shape and color. Flowers usually in clusters, 2 kinds, seed bearing and pollen bearing, mostly pink and white, fruit is 3 winged.

**Begonia argentea guttata**—Profusely branched. Leaves shining green, ovate, lance shaped, toothed margin, slightly lobed, 2½ in. wide by 3 to 5 in. long, thickly dotted with white spots. Flowers in clusters, variable, white tinged with pink.

**Begonia discolor**—Java, China and Japan—Branching, smooth surface. Leaves ovate, somewhat heart-shaped, lobed, with toothed margins, green above, red beneath. Flowers numerous, large, flesh colored.

**Begonia Erfordii**—Very dwarf and bushy 1½ ft. Flowers numerous, rose carmine.

**Begonia fuchsioides**—New Granada—Stems stall. Leaves ovate, 1½ in. long, tinged with red when young. Flowers drooping and the buds look very much like fuchsia buds.

**Begonia Gloire de Lorraine**—Leaves clear green, round in outline and mostly regular. Flowers mostly pollen bearing kind, very few seed producing, full clusters of large pink flowers.

**Begonia gracilis**—Stem erect, not branched. Leaves somewhat heart-shaped, slightly hairy, toothed margins with short hairs.

**Begonia luminosa**—Leaves oval shaped, wavy margin with small hairs. Flowers firey dark scarlet.

**Begonia Mde de Lesseps**—Strong, erect growth. Leaves, large, metallic, green above, red beneath and strongly veined. Flowers large, white, in clusters.

**Begonia nitida odorata alba**—Jamaica—Stem 3 to 4 ft. high. Leaves obliquely oval, wavy, 4 to 6 in. across, glossy, dark green. Flowers rather small, pure white and sweet scented.

**Begonia rex**—Assam—Ornamental leaved species. Short, fleshy underground stem. Leaves large, long stalked, oval, wavy and hairy, colored a rich metallic green with zone of silver gray. Pollen producing flowers, larger than the seed producing flower. Both rose tinted and 2 in. or less in diameter.

**Begonia robusta**—Much branched. Leaves small, 1½ to 3 in. long, ovate, lance shaped, irregularly toothed, green above, tinged red beneath. Flowers pink in long stemmed, graceful clusters.

**Begonia Vernon**—Stems 6 in. to 18 in. high, green or reddish. Leaves oval, toothed and hairy on margin, glossy green, reddish along midrib. Flowers deep red.

**Bellis perennis**—“English Daisy”—Perennial herb, 3 to 6 in. high. Leaves clustered at the root. Flowers 1 to 2 in. across, pink, composite flower with many crowded rays and yellow center. January 1 to March 15.

**Caladium esculentum**—“Elephant's Ear”—(*Colocasia antiquorum* var. *esculenta*)—Hawaii-Fiji—Root large and starchy, edible. “Taro” from which “Poi” of Hawaii is made. Leaves peltate, ovate, very large, the lobes at base a half as long as the rest of leaf.

**Calceolaria hybrida**—“Slipper Flower”—An erect herb with opposite stems and leaves. Leaves are rough and hairy with distinct veins. Flowers 2 lipped, the lower is inflated, the upper smaller, very rich colors.

**Canna hybrida**—Orig. Indian Shot—Stout unbranched, large leaved herbs. Leaves oblong and pointed, light green or metallic. Flowers in thick clusters at end of stalk, large with many colors and variegations.

**Chrysanthemum leucanthemum**—“Ox Eye Daisy”—One of the commonest weeds of the eastern states. The Shasta Daisy is an improved form of the above, a perennial with leaves mostly at base, the flowers white with dark centers, 4 or 5 in. across. Late spring and summer.

**Cineraria cruenta**—This species includes *C. hybrida*, *C. grandiflora*, *C. Kewensis*, *C. nana*, etc. Leaves are large, wavy and downy, with irregular margin. Flowers in large clusters, variously colored, tipped and marked. March 15 to April 15.

**Cuphea ignea**—(Syn. *C. Platycentra*)—“Cigar Plant”—Mexico—Interesting tropical herb of dwarf habit. Leaves oval, entire, from ½ in. to 1 in. in length, somewhat bronzy. Flowers have no petals, but the tiny calyx, about ¼ in. in length, is bright scarlet, excepting the tip, which has a dark ring and a white mouth, suggesting a cigar ash, hence the common name. Flowers almost perpetually.

**Cyclamen persicum**—“Persian cyclamen”—The common variety has many forms. Leaves appearing with the flowers, various shapes, mostly heart-shaped. Often marbled with white along the veins. Flowers on stems, 6 to 7 in. high, large, reflexed petals, purple blotched at mouth, many varieties.

**Cyrtomium falcatum**—“Holly Fern”—Japan and India—Simple pinnate fronds, glossy. Segments oval, pointed, somewhat sickle shaped, rounded at base, 4 to 6 in. long, 1 to 2 in. wide.

**Cyrtomium Rockfordianum**—“Crested Holly Fern”—Larger than *C. falcatum* and



deeply and variously cut segments, giving a crested effect.

**Dieffenbachia**—"Mother-in-law Plant"—Central and South America—Low, shrubby perennials, stems rather thick. Leaf stems half cylindrical, sheathed to above middle, cylindrical at top. Leaf blade oblong with thick midrib at base. Many handsome leaf varieties.

**Digitalis purpurea**—"Foxglove"—Species most commonly cult., 2 to 3 ft. high. Leaves rough surface, and somewhat downy. Flowers many on tall spikes, tubular, 2 in. long, hanging downward, purple to white and more or less spotted.

**Echinocactus Wislizeni**—"Fish Hook Cactus"—S. W. United States—Well known species of cactus, belongs to the genus popularly known as Hedgehog Cactus (from echinos, a hedgehog). Spherical in shape when young, developing into cylindrical form in old plants; ridged with about twenty ridges, regular and sharp edged, bearing bundles of spines at regular intervals, the central one being longer and hooked, and all very strong. Flowers on older plants only. Greenish white.

**Echinopsis oxygonia**—"Sea-Urchin Cactus"—Brazil—Cactaceous plant, globular in shape, divided into about 14 ridges, upon which are tufts of brown spines,  $\frac{1}{2}$  to 1 in. long. Stem reaches  $1\frac{1}{2}$  ft. in height and 1 ft. in diameter, becoming somewhat columnar in shape. Gray green. Flowers 8 in. long, tubular, slightly curved, covered with small scales and hairs, bright rose.

**Eupatorium species**—Herbs or shrubs, tender or hardy. Leaves ovate or rhomboid, lance shaped, to simply lance shaped, toothed edges. Flowers in heads without rays, ageratum like in large flat topped clusters, white or purple.

**Euphorbia tirucalli**—(Syn. *E. rhipsaloides*)—East Africa and India—Tree, 20 ft.—Curious tree with many slender branches, cylindrical, smooth, rush-like in appearance, fleshy. Leaves small and inconspicuous.

**Fuchsia Magellanica var gracilis**—"Ladies' Ear Drops"—Peru and South to Terre del Fuego—Very slender and graceful. Leaves opposite or in threes, ovate, lance shaped, toothed edge. Flowers pendant on slender stems. Calyx tube and divisions red, the petals dark blue.

**Gaillardia kermesina splendens**—Erect, 2 to 3 ft. high, perennial. Leaves rather thick lance shaped or oblong, variable in shape and margin. Flower heads 3 to 4 in. across, the flat rays varying red and yellow. March 15.

**Gasteria nigricans**—Cape of Good Hope—Closely allied to Aloe. Leaves in rosettes of from 12 to 20, tongue shaped, leathery, 4 in. to 8 in. long, swollen beneath, flat above, shining, dark or purplish green with numerous small white spots. Flowers in clusters, 12 in. to 18 in. long.

**Gasteria verrucosa**—(Aloe verrucosa)—Cape of Good Hope—Succulent plant, allied to Aloe. Leaves borne in a rosette of from ten to twelve, somewhat wedge shaped, outer ones spreading, inner ones erect, 6 to 9 in. long, face concave, back swollen, dull gray, very rough with small white tubercles. Flowers rosy in color, tubular in shape.

**Gazania ringens**—Cape of Good Hope—Compact plant, milky juice. Leaves narrow, dark green above, woolly white beneath. Flower heads large, orange rays with spots near the base.

**Geranium**—(Garden varieties)—Original "Crane's Bill"—See Pelargonium.

**Gladiolus**—"Corn Flag," "Sword Lily"—Summer flowering bulbs. Leaves tall, sword shaped, prominent veined. Flowers somewhat tubular, funnel shaped, 6 segments, more or less unequal, set close to stem, making a long spike.

**Gysophila paniculata**—"Baby's Breath"—Open and rather tall, much branched. Leaves narrow, 3 in. long to much shorter near the flower clusters. Flowers white, very numerous and on long slender stems. Much used for trimming bouquets.

**Heliotropium Peruvianum**—Common Heliotrope—Shrubby herb—Leaves oval or oblong, lance shaped, very veiny, making a rough leaf. Flowers in close coiled clusters, various shades of purple. H. Corymbosum has narrower leaves and more open clusters of flowers.

**Hollyhock**—*Althea rosea*, which see.

**Hydrangea hortensis**—China and Japan—Shrub, 8 ft.—Most common type in Southern California. Leaves large, 5 to 8 in. long. Flowers usually pink, in large compact clusters without bracts. Prefers partial shade.

**Iris**—"Rainbow Flower"—Plants with bulbs or root stem. Leaves sword shaped and sheathed together at base. Flowers with 6 segments, the three outer reflexed and 3 inner usually smaller and erect, various shaped and colored with orchid like texture. April.

**Ismene calathina**—"Peruvian Daffodil"—Long necked bulb. Leaves 6 to 8, strap shaped, 2 ft. or less long. Flower stem flattened with 2 to 5 flowers in close cluster. The tube is green, 3 to 4 in. long, the segments as long. The cup has green stripes and rounded fringed margin. Flg. June to July.

**Kniphofia aloides**—(Syn. *Tritoma uvaria*)—"Torch Lily," "Red Hot Poker," "Flame Flower"—S. Africa—Well known plant with tufted grass-like leaves, two or three feet in length. Individual flowers tubular, about an inch long, borne in spikes, 6 or 8 in. and well above the leaves. Upper flowers are bright red, lower ones yellow. Quite showy. Spring.

**Leonotis leonurus**—"Lion's Tail"—Tender shrub, 3 to 6 ft. Leaves 2 in. long, rather narrow, coarsely toothed. Flowers deep scarlet, almost plush like, tubular, 2 in. long, many flowered whorls.

**Lilium Batemanniae**—Bulbous plant—Leaves grass-like, sheathing each other and the flower stalk at base. Flowers lily-like, apricot yellow and with narrow segments, not reflexed.

**Linum flavum**—Temperate Regions—Erect, rather woody base, 1 to 2 ft. Leaves lance shaped or linear. Flowers golden yellow in much branched cluster, large and showy. Summer and Fall.

**Linum usitatissimum**—"Flax"—Temperate regions—Annual erect growing plants, 2 to 3 ft. high, very slender branched. Much cultivated for linseed and fibre and has been used from time immemorial. Leaves small, narrow and pointed. Flowers about  $\frac{1}{2}$  in. across, light blue, and soon withering, large round pod. Summer and Fall.

**Mellanthus major**—Honey Flower—Cape of Good Hope—Shrub 5 to 10 ft. high. Leaves bluish, pinnate, unequal, 1 ft. or so long, the upper not so large. Flowers red brown, tubular, 1 in., in long, dense clusters, a foot or more in length. A honey plant.

**Mimosa pudica**—"Sensitive Plant"—Erect, branching, hairy and spiny. Leaves sensitive to touch, quickly closing and drooping, then slowly regaining its normal position. Flowers numerous in globular, oblong heads, purplish. April-May.

**Mirasolia diversifolia**—South Mexico—Large, coarse plants, making large clumps. Leaves large halberd shaped. Flowers large yellow, sun-flower like. December.

**Moraea iridiodes**—South Africa—Bulbous plants, much like Irises. Stem 1 to 2 ft. high with many short lance shaped bracts. Leaves in fan shaped rosettes. Flowers over 3 in. across, white marked with yellow and blue, flag-like. Lasting only a day or so. The new bud apparently forms just beneath the old fruit.

**Nierembergia frutescens**—Chile—Shrubby herb, growing from 2 to 3 ft. in height. Leaves lance shaped,  $1\frac{1}{2}$  to 2 in. long. Stems much branched, flax-like. Flowers bell-shaped, pale blue, shading to white at the edges. Hardy. May.

**Opuntia microdasys**—Mexico—Cactus with curious flattened branches, slightly racket shaped, almost circular, clothed with small tufts of bright orange bristles, borne very close together, so as to almost hide the green joints. Grows to about 2 to 3 ft. in height. Flowers lemon yellow, freely borne, followed by oval shaped fruit, also covered with spines as are the leaves.

**Opuntia Tuna**—"Prickly Pear"—West Indies, etc.—Well known species of this genus, growing sometimes to a height of 20 ft. The branches or joints are oval, flattened and from 4 in. to 9 in. long, with separate bundles of yellow, needle shaped, unequal spines. Flowers 3 in. in diameter, reddish orange, borne on the upper edges of the newest joints. Fruit carmine. Long pear shaped. This is the species which was used as a hedge to protect the old mission against the Indians.

**Pandanus utilis**—"Screw Pine"—Madagascar—Tropical plants, often growing to size of trees. Stilt like roots. Leaves sword shaped, erect, 1 to 3 ft. long, red spines and spirally arranged on stem.

**Papyrus antiquorum**—"Egyptian Paper Reed"—Tall, graceful, aquatic, 4 to 8 ft. high. Stem 3 angled, smooth with numerous drooping rays, 10 to 16 in. long. Gives effect of tall upright tassels. Not hardy.

**Pelargonium**—Geranium of the Gardens—Most cultivated forms can be grouped into four general classes: 1. The Zonal, horseshoe, fish or bedding types, generally known as "Geraniums." Leaves often with colored zone and flowers in terminal clusters on rather heavy stalks. 2. The Ivy-leaved Geraniums, with weak, straggling stem. Leaves thick, angled margins and glossy. 3. The show or fancy type, known as Lady Washington Geraniums. Leaves are often partly closed. The flowers are large and highly colored, with many shades. 4. Various scented leaved Geraniums, known mostly as Rose Geraniums. Leaves rough texture and deeply cut. The flowers are rather insignificant. The color of Geraniums vary through shades of red, pink and some are pure white.

**Penstemon species**—"Beard Tongue"—Herbs, the base sometimes woody, perennial. Leaves opposite and sometimes almost growing together. Flowers long, tubular, often 2 lipped in terminal usually interrupted or leafy clusters. In purple, blue, pink, yellow, red, white.

**Pereskia aculeata**—"Cactus Vine," "Lemon Vine," "Barbados Gooseberry"—West Indies—Popularly known as a vine, this plant is in reality a spreading shrub, growing to a height of 6 ft. or more, but of very slow growth. Leaves alternate, short stemmed, 3 in. long by 2 in. broad, soft, fleshy shining green, with two short spines at the axil of the leaf, also a small tuft of wool. Flowers semi-transparent, white, small, and in small clusters. Fruit 1 in. long, red, edible.

**Phormium tenax**—"New Zealand Flax," "Flax Lily"—New Zealand—Herbaceous plant, 3 to 6 ft. high, with tuft of sword like leaves. Leaves 2 to 3 in. wide and about 4 ft. long, margins and keel brown. Flower stalks taller than leaves. Flowers in a spike and varying from scarlet to yellow.

**Philodendron selloum**—Brazil to Paraguay—Tropical fleshy plant with heavy stems and large pinnate leaves, the segments again pinnate or lobed. The terminal segment is three lobed, and the leaf is distinguished by numerous translucent spots.

**Pilea microphylla**—"Artillery Plant," "Pistol Plant"—A small, weak plant. Leaves very small and numerous, less than  $\frac{1}{4}$  in. Flower clusters close set to stem. When the staminate flowers open the pollen is discharged by a small explosion, hence the name Artillery plant.

**Platycerium alcicorne**—"Staghorn Fern," "Elkhorn Fern"—Temperate Australia—Barren fronds rounded, convex, wavy margined. Fertile fronds, in clusters apparently growing out of the barren one, two to 3 ft. long and forked in narrow divisions, the under side downy.

**Pteris tremula**—"Australian Bracken"—Australia—Fronds 2 to 4 ft. long on shiny brown stalks. Upper divisions simply pinnate, lower compound, sori filling the whole back.

**Richardia Africana**—"Arum Lily," "Calla," "Lily of the Nile," "Trumpet Lily"—Herbs with many long stemmed leaves from thick underground stem. Leaves large, pointed at apex and arrow shaped at base, variable in size. Flower spathe white with flaring blade, 3 to 10 in. long. Spike yellow.

**Romneya coulterii**—"California Bush Poppy"—California—Shrubby plant with large white flowers. Leaves bluish, 3 to 5 in. long, deeply cut. Flowers poppy-like, 6 in. or more across, 6 crepe like petals, yellow center.

**Rudbeckia species**—"Cone Flower"—Mostly perennial showy flowers, usually with yellow rays and cone shaped disk, hence the common name.

**Rudbeckia laciniata**—"Golden Glow"—North America—Perennial, 2-7 ft. high, lower stem leaves 3 to 5 parted, upper ones 3 cleft. Flowers large and a full double form.



**Salvia splendens**—"Scarlet Sage"—Brazil—Most popular of all red fld. Salvias. Tender perennial herb, 2 to 3 ft. high. Leaves ovate, pointed, toothed. Flowers scarlet, tubular, about 2 in. long, in terminal pyramidal clusters, 6 in. or so long, with 2 to 6 flowers in whorl.

**Sansevieria Zeylanica**—"Ceylon Bow-string Hemp"—A tender foliage plant. Leaves basal, erect, 1 to 3 ft. long, 8 to 15 in. cluster; sword-shaped and fleshy, variegated with transverse markings of greyish white. Rarely blooms in cultivation.

**Saintpaulia ionantha**—"African Violet"—Stemless herb. Leaves short stemmed, ovate or oblong heart shaped, 1 to 2 in. long. Flowers blue, nodding, unequally lobed resembling a violet. One of the choicest of blue winter blooming plants.

**Schizanthus Wisetonensis**—"Butterfly Flower"—Chile—Annual herbs. Leaves finely cut. Flowers in large open clusters, variously colored and cut, the spreading divisions resembling the wings of a butterfly. April 1.

**Sedum spathulifolium**—Large, heavy stemmed branching plants. Leaves spatulate-shaped in tufts at end of branches, margins minutely toothed. Flowers yellow in a many flowered dense pyramidal spike. January 1 to April 1.

**Senecio petacitis**—So. America—Robust perennial, branching, 2 to 6 ft. high, downy on the young growth. Leaves large, long stalked, roundish in outline, shallow lobed, soft down surface, grayish beneath reddish stalks. Flower heads in a large open cluster, yellow, starlike and numerous. January 1 to March 1.

**Shasta Daisy**—See *Chrysanthemum leucanthemum* varieties.

**Stapelia grandiflora**—"Starfish Flower"—Leafless plants with 4 angled stems 4 to 6 in. long, erect, or somewhat prostrate. Flowers starshaped with buttonlike dish in center, several inches across, dark purple, leathery and hairy lying flat on ground.

**Stapelia variegata**—Similar to *S. grandif.*, with rather smaller stems. Flowers yellow with red spots, very leathery, not hairy.

**Streptosolen Jamesonii**—Columbia—Shrub 4 ft.—Handsomeness evergreen shrub, much used for bedding purposes, as well as for shrubbery plantings. Leaves small, resembling *Heliotrope* in appearance. Flowers orange colored, somewhat Phlox shaped. February.

**Swainsonia galegifolia**—Australia—Shrub, 4 to 5 ft.—Of rather spreading growth. Leaves pinnate, finely divided. Flowers resembling sweet peas, but not fragrant, borne in long, erect sprays. There are at least four distinct varieties of colors, viz.: White, rose, red, violet. March.

**Tristania conferta**—"Australian Turpentine tree"—Australia—Evergreen tree 150 ft., with leaves resembling those of orange but larger, smooth and not serrated, dull green above, light green beneath, clustered at the ends of the branches. Flowers white, spotted with pink. Star-shaped, fringed.

**Tritoma uvaria**—See *Kniphofia*.

**Verbena hybrida**—A prostrate herb, with square hairy stems. Leaves lance-shaped in outline and rather deeply cut, prominent nerves and hairy surface. Flowers with long tube and 5 wide open lobes in compase spikes. Popular colors are red, white, blue, purple, pink.

**Watsonia**—Bulbous plants much like the *Gladiolus*. Leaves sword-shaped, rigid. Flowers with long slender tube, bent near the base and all six of the segments are regular in shape.

**Wigandia macrophylla**—Mexico—Tender perennial 6 ft. or more, in a season if treated as sub-tropical. Leaves large and rough, 3 ft. long, thick white felt on under side of leaves. Flowers in 1-sided spikes of two ranks. violet with white tube.

**Yucca filamentosa**—"Adam's Needle and Thread"—Plant without a stem. Leaves sword-shaped, somewhat concave and rather weak but with sharp point, the margins with curly fibres. Flowers creamy white in loose, long-stalked clusters, six-parted and lily like.

**Zinnia elegans**—"Youth and Old Age"—Mexico—This is the species from which most of the common forms are derived. There are many varieties both single and double, the latter being most commonly grown. This form is an erect annual, from two to three feet in height, leaves elliptic, opposite, stemless, and flowers globular in shape, averaging about 3 in. in diam., and of nearly all colors.

## WILD FLOWERS—PREFACE

The following contains a brief description of some of the principal wild flowers, plants, ferns and trees in and about the Exposition. They are arranged alphabetically and by color. Each of the color groups contains flowers that vary in color or have different color markings, but the predominating color should be considered in classifying the flowers. Under each heading are listed other colors in which the flowers may appear. The date of bloom is only approximate; with the aid of irrigation, many of the perennials may be kept blooming most of the year.

### WHITE

(Includes light lavender, light buff, light green, light blue.)

**Adenostoma Fasciculatum**—Brush—Shrubs, with gray, shreddy bark, reddish, slender branches. Leaves, dark green, about  $\frac{3}{8}$  in. long, awl-shaped and in clusters. Flowers, very small, white, in terminal feathery clusters. One of the most common brush covers of our slopes and mesas. April-May.

**Allium**—Lily—"Wild Onion"—Leaves, narrow, basal. Flowers, white in terminal clusters, subtended by 2 or 3 membranous bracts. Odor of onions. Park—April-May.

**Anemopsis Californica**—Bog—"Yerba Mansa"—Leaves, basal, long-stemmed. Flowers, cone-like spikes, subtended by 5 to 8 white, petal-like bracts; the whole giving impression of a single large, star-like flower. Back country wet places, spring and summer.

**Anthemis cotula**—"Mayweed"—About 1 foot. Leaves, finely dissected, strong-scented. Flower heads, long-stemmed, daisy-like, yellow center, white rays. Common weed everywhere.

**Argemone platyceras**—"Prickly Poppy"—prickly herbs, 1 to 2 ft. high. Leaves, lobed or cut  $2\frac{1}{2}$  to 4 in. long, the lower leaves narrowed to a winged stem. Flowers, white, about 3 inches in diameter. Very similar to the *Matilija* poppy.

**Arctostaphylos bicolor**—"Manzanita"—Shrub with rigid branches. Bark reddish, flaking off in gray shreds. Leaves, oval or oblong, 2 to 3 in. long, rolled resembling *Lilies of the Valley*, but in clusters. Berry dark brown, Mission Valley hillsides and vicinity.

**Artemisia Californica**—"Sagebrush"—Shrub 4 to 5 ft. high, with many slender branches. Strong, sagey fragrance. Leaves, finely dissected divisions, 1 inch or so long. Flower heads, greenish, very small and numerous. Park.

**Astragalus leucopsis**—"Loco Weed"—Stems 1 to 3 ft. Leaves, pinnate, pale green, many pairs of leaflets. Flowers in spike-like racemes, greenish white, and about 1 in. long. Bladder-like pods which rattle in the wind. Park—April-June.

**Atriplex semibaccata**—"Australian Salt Bush"—Vigorous, much branched perennial, forming dense mat 4 or 5 feet in diameter. Leaves, about 1 in. long, coarsely toothed, gray-green. Fruit, compressed with small horns on edge, pulpy with single hard seed. Vacant lots.

**Audibertia polystachya**—"White Sage"—Shrubs, 3 to 20 ft., many stems from woody base in spring. Leaves, lance-shaped, opposite, several inches long. Flowers, 2 lipped, pale lavender, loose clusters a foot or so long. Whole plant silvery and rank odored. Famous *White Sage Bee* plant of California. Park.

**Baccharis glutinosa**—A willow-like shrub, stem ribbed. Leaves, narrow and pointed at both ends, coarsely toothed, some glutinous, whence the name glutinous. Flowers, ageratum-like in terminal clusters. Grows along the banks of streams. Park canyons. February-April.

**Baccharis sarathroides**—Erect, much-branched shrub, twigs green, angled, numerous, forming crowded, broom-like clumps. Leaves, few, narrow and sometimes very small, not over  $\frac{3}{4}$  in. Flower heads, solitary and insignificant, until the seeds ripen, when bush seems covered with white, silky down. Park. Fall.

**Calochortus catalinae**—"Catalina Mariposa Tulip"—Stems, 1 to 2 ft., loosely branching. Leaves, long, narrow. Flowers, about  $1\frac{1}{2}$  in. long, purple spot near base of sepals. Petals tinged with lilac, garnet base, oblong gland covered with hairs. Park. April-May.

**Capsella Bursa-Pastoris**—"Shepherd's purse"—Stems, 3 to 15 in. high. Leaves, narrow. Flowers, very small, white, but seed pods conspicuous, wedge-shaped with deep notch at top. Vacant places. Spring.

**Carpenteria Californica**—Shrub, 6 to 10 ft. Leaves, 2 to 4 in., bright green above, whitish beneath. Flowers, pure white, 2 to 3 in. across, fragrant. The 5 petals concave, stamens many. Cultivated.

**Ceanothus verrucosus**—"White Lilac"—Shrub, 3 to 12 ft., warty stems. Leaves, wedge-shaped, rounded or notched on top, about  $\frac{1}{2}$  in. or less, sometimes few toothed. Flowers, white, in rather loose clusters, delicate, but rather heavier than other *ceanothus* flowers. Park. Early spring.

**Clematis ligusticifolia**—"Clematis"—Stems, woody, sometimes climbing 30 feet. Leaves, 5 foliate, leaflets  $1\frac{1}{2}$  to 3 in. long, 3 lobed and coarsely toothed. Flowers, white, 4 sepals, many stamens. Seed with long, silky tails. Climbs over brush. Park. Spring.

**Convolvulus Arvensis**—"Bindweed"—Prostrate stems, trailing several feet. Leaves, arrow-shaped, an inch or so long. Flowers, white, a small "Morning Glory." In cultivated fields.

**Datura Meteloides**—"Large flowered Datura"—Stems, branching 2 or 3 ft. high. Leaves, oval, several inches long. Flowers, white, funnelshaped, border with awl-shaped teeth. Grows along road sides. June-July.

**Dentaria Californica**—"Pepper root"—Stems, 6 inches to 2 feet high. Root leaves, simple and roundish. Stem leaves, 3 to 5 pinnate leaflets, 1 to 3 in. long. Flowers, white to pale rose, in terminal clusters. Petals four. Mustard family. Park.

**Dodecatheon Clevelandi**—"Wild Cyclamen"—Leaves, all basal, paddle-shaped. Flower stems, leafless, 3 inches to 1 foot, terminating in clusters from 2 to 20. The lilac to white petals reflexed, and dark stamens are united into a point. Park. Early Spring.

**Echinocystis Macrocarpa**—"Chillicothe"—Vines with tendrils 10 to 30 ft. Very large, woody, root. Leaves, palmate, 5-7 lobed, 3 to 6 in. across. Flowers, greenish white,  $\frac{1}{4}$  to  $\frac{1}{2}$  in. Pistillate flowers, solitary in same axils as the clusters of staminate flowers. The pistillate soon developing into green spiney pods, 4 in. long, with dark seeds inside. Park. February to July.

**Eremocarpus setigerus**—"Turkey Mullein"—Stem, much branched and prostrate, forming mats 1 to 2 feet or more in width. Herbage gray. Leaves thick, oval, 1-3 to 11-2 in. long, 3 nerved. Flowers, small and insignificant. Grows in waste places and fields.

**Eritrichium angustifolium**—"White Forgetmenot"—Plant basal with bristly hairs, 6 to 18 in. long. Leaves, narrow, 3 to 4 in. long. Flowers, small, white and in dense coiled spikes. Park. January-April.

**Eriogonum fasciculatum**—"Wild Buckwheat"—Shrubby and very leafy. Leaves, crowded into clusters,  $\frac{3}{4}$  in., narrow and pointed. Flowers, white or pink in dense compound clusters. Important honey plant. Park.

**Euphorbia Misera**—Shrub, very much branched and scraggy. Milky sap. Gray branches often covered with lichens. Leaves, few and small. Flower clusters, very small. Point Loma. July.

**Euphorbia Polycarpa**—"Fairy Mat"—Small, prostrate plant with milky juice. Much branched. Lies flat and compact like a mat. Leaves, opposite and very small,  $\frac{1}{8}$  in. Flower heads, small and numerous, white with dark centers. Seed pod on a growing stalk. Park. January-March.



**Floerkea Douglasii**—"Meadow Foam"—Smooth, watery stems. 1 foot or so. Leaves, much dissected. Flowers in the axils of the plant and solitary, white and buff with U-shaped band of hairs at base. Cultivated.

**Galium Aparine**—"Bed straw"—Slender, climbing plants with prickly stems and leaf margins. Leaves in whorls of 6 to 8, very narrow and about 1 in. long. Flowers minute, greenish white. Noticeable in Spring or north slopes. Park.

**Galium Angustifolium**—Similar to *G. aparine*, but growing from woody base, and branching more. Leaves, are in whorls of four, and the plant climbs over shrubs often thickly covering them. Park.

**Gnaphalium decurrens Californicum**—"California Everlasting"—Stems, stout, 1 to 3 ft. high, glutinous. Leaves, dark green, crowded, smaller above. Flower heads, white, papery, on terminal, rounded clusters. Park.

**Gnaphallum microcephalum**—"Small headed everlasting flower"—Plant, 2 to 3 ft., the several stems branching into an elongated panicle. Herbage covered with white, woolly covering. Leaves, very narrow, about 1 inch or so long, and quite numerous. Flower heads white and papery. Balsamic odor. Park.

**Heliotropium curvassavicum**—"Wild Heliotrope"—Spreading stems, 6 to 12 in. long, leavy. Leaves, oblanceolate, 1 to 2 in. long, smooth. Flowers, white or blue, with dark or green centers about  $\frac{1}{8}$  in. across. One-sided, coiled spikes in hairs. Park.

**Hemizonia Tenella**—"A tar weed"—Slender, 6 to 12 in. high, slightly sticky. Leaves, very narrow. Flower heads, white, the few rays often having a purple blotch. May.

**Heteromeles arbutifolia**—"California Holly"—Large shrubs, 4 to 25 ft. Leaves, arbutus-like, slightly toothed, short-stemmed, 2 to 4 in. long. Flowers, about  $\frac{3}{4}$  in. across, white in dense terminal clusters, which are followed by red berries. Berries, fall to Christmas. Park.

**Lonicera Interrupta**—"Chaparral Honeysuckle"—Branches twining or reclining. Leaves, small, opposite. Flowers, less than  $\frac{1}{2}$  in. long, and in terminal spikes. Same habit as other honeysuckle. Park.

**Marrubium Vulgare**—"Hoarhound"—Whitish, woolly herbs, 1 to 2 ft. Leaves roundish, much wrinkled. Flowers, white, small in dense whorls. Common weed of old fields. Tops used medicinally.

**Mesembryanthemum crystallinum**—"Dew plant"—Prostrate, watery plants, covered with minute glistening globules which enlarge as plant ages. Leaves, flat, oval, wavy margins, about 4 to 5 in. long. As the stems lengthen the leaves dwindle to very small ones. Flowers, numerous, white, with many stamens, star-like. The ripe fruit has a red stain that gives it a decided reddish hue. Park.

**Montia perfoliata**—"Indian Lettuce"—Smooth, watery herbs, simple, about 6 or 7 in. high. Leaves, a united pair near summit, circling the stem completely. Flowers, small, white, in clusters, apparently growing out of the saucer-like leaf. Damp places. February-April.

**Muilla maritima**—3 to 12 in. high. Leaves, basal and narrow. Flower, stem with umbel of many small, greenish-white flowers. Flowers, with 6 segments,  $\frac{3}{4}$  in. long. Has pleasant fragrance. Park, subsaline or alkali soils. March.

**Nemophila parviflora**—Stems, long, watery and prostrate, often sparse, small prickles. Leaves, lobed, irregularly. Flowers, very small,  $\frac{1}{4}$  in., white. Moist places, fern-like. Park. February-March.

**Oenothera Californica**—"White Evening Primrose"—Stems about 1 ft., downy white. Leaves, 2 to 4 inches long, remotely toothed or cut. Flowers, white, turning to rose color, 2 in. across. Buds opening late in the day. Cultivated.

**Prunus ilicifolia**—"Holly Leaved Cherry"—Shrubs or trees, 8 to 30 ft. Leaves, holly-like, about 1 in. long. Flowers, white, small, many stamens. This plant is used much at Christmas for wreathes. Park.

**Rhamnus crocea**—"Buckthorn"—Much branched shrub, with stiff pointed twigs, grayish bark. Leaves, small, shining, with very small, sharp spines or margins. Flowers, green and inconspicuous, berries, red. Leaves drop in winter. Park.

**Rhododendron Occidentale**—"California Azalea"—Shrubs, 2 to 12 feet high. Leaves, clustered at ends of branches 2 to 4 inches long. Flowers, funnel shaped, white, upper lobe blotched with buff, long stamens. Large clusters. Back country. June-July.

**Rhus laurina**—"Sumach"—Shrub, 2 to 10 feet, red twigs and leaf and flower stems. Leaves, lance-shaped, 3 or 4 in. long, folded and curves downward. Flowers, greenish white, very small and in dense terminal clusters. Strong odor. Park. June.

**Romneya Coulterii**—"Matilija Poppy"—Numerous stems, several feet high. Leaves deeply cleft, bluish, 3 to 5 inches long and bristly. Flowers, large, white, solitary, crepe-like texture. Stamens very numerous. Back country and cultivated. June-July.

**Sambucus glauca**—"Common Elder"—Shrubby or tree-like, often 30 feet high, with finely fissured bark. Leaves, opposite and pinnate, leaflets 3 to 9, lance-shaped, saw-edge, 2 inches or so. Flowers, cream colored, minute in flat-topped clusters. Berries, small, dark blue, with white bloom. Park canyons. April.

**Saxifraga Californica**—"Saxifrage"—Leaves, few, basal, not appearing at first. Flowers, on slender stalk, small in terminal clusters, white with reddish veins. Spring up quickly after first rain. Park.

**Simmondsia Californica**—"Compact shrub, stiff stemmed. Leaves, in pairs, pointed forward about  $\frac{3}{4}$  in. long, leathery. Flowers, in close, crowded pairs and insignificant. Park and vicinity.

**Stephanomeria virgata**—Stems, 2 to 10 ft. high, much branched, with slender branchlets. Leaves, narrow and few, the lower partly clasping the upper; mere bracts. Flowers, light lavender or white; all rays with notched tips. Park and waste places.

**Yucca Mohavensis**—"Spanish Bayonet"—Trunk usually simple, rarely more than 15 ft., 6 to 8 in. in diameter, naked or covered with green or dead leaves. Leaves,

linear, 1 to 3 ft., 1 to 2 in. wide, needle-pointed, margins with coarse threads. Flowers, white, in short stemmed, distaff-shaped clusters, 1 to 2 ft. Park and North Island Sea shore.

**Yucca Whipplei**—"Our Lord's Candle"—Without trunk. Leaves all from base, in bristling hemisphere. Flowers in distaff-shaped clusters, 3 feet or more, at summit of leafless stem, 10 to 15 ft. high. Individual flowers, white, or purple nerved. Back country.

**Zygadenus Fremontii**—"Zygadene Star"—Leaves, channeled and narrow. Flowers, white, segments strongly nerved with yellow glands at base. Tall stems with large clusters of starlike flowers. Park. March-April.

## BLUE

(Includes lilac and lavender.)

**Abronia villosa**—"Lilac Sand Verbena"—Like *A. martima* (purple) but with mat flowers. Beach.

**Antirrhinum vagans**—"Violet Snapdragon"—Slender herbs with short branches that twine. Leaves, narrow, about 1 in. long. Flowers, small, about  $\frac{1}{2}$  in. long, lavender or darker, with closed lips like other snapdragons. Park. March-June.

**Audibertia stachyoides**—"Black Sage"—Shrubs, 3 to 8 ft., herbaceous, flowering branches. Strong sage odor. Leaves, opposite, oblong, lance-shaped, wrinkled, dark green. Flowers, in spikes with 3 to 9 interrupted dense headlike whorls of lavender hue.

**Brodiaea capitata**—"Wild Hyacinth"—Leaves, narrow and about 1 foot long, withering early. Flower stem sometimes 2 feet high. Flowers, violet,  $\frac{3}{4}$  in. in dense heads. Park. February-May.

**Brodiaea minor**—Flower stems slender, 3 to 6 in. high, bearing a loose cluster of 2 to 5 flowers on pedicels 1 to 2 in. long. Flower, blue, about 1 in. long, with green midvein running the length of the segment. Park. Late Spring.

**Ceanothus divaricatus**—"Wild Lilac"—Shrub, 5 to 10 ft., with pale green or bluish twigs, divergent, many ending in spines. Leaves  $\frac{1}{2}$  to 1 in. long, oval, 3 nerved. Flowers, minute in narrow, oblong clusters, pale blue. Common in back country. Early Spring.

**Ceanothus thyrsiflorus**—"Wild Lilac"—Shrub, 5 to 8 feet. Leaves, green on both surfaces, 1 to 2 in. long, strongly 3-nerved margins slightly toothed. Flowers, very small and delicate in numerous, close clusters, mostly blue. Fragrant. Cultivated. Early Spring.

**Cichorium intybus**—"Chicory"—Stems, 2 to 5 ft., much branched, with slender branchlets. Leaves, narrow and few, the lower partly clasping, the upper mere bracts. Flowers, blue, all with rays, notched at tip. Park, waste places.

**Corethrogyne filaginifolia virgata**—"Aster family"—Slender, 2 to 3 ft. high, minute oil glands. Leaves, narrow, numerous, about  $\frac{1}{2}$  in. or so long. Flowers, with yellow center and violet blue or purple rays; numerous, terminal heads, covering whole plants. Park. June-October.

**Delphinium simplex**—"Larkspur"—Stem, 2 to 3 ft., slightly pubescent. Leaves, 5 to 7 lobed, segments narrow. Flower clusters, 3 to 6 in. long, many flowered, spur about  $\frac{1}{2}$  in. long, and mostly straight. Flowers blue, 2 upper petals tipped with white.

**Eriodictyon tomentosum**—Shrubby, 3 to 5 ft. Leaves, thick and very woolly, 3 to 6 in. long, ribbed like the chestnut and closely notched. Flowers, full clusters of tubular, violet flowers about  $\frac{1}{2}$  in. long. Abundant on seashore mesas.

**Gilia Achilleaeifolia**—Very similar to *G. capitata* in habit except that the flower clusters are larger and less compact. Back country and cultivated.

**Gilia capitata**—Erect, 2 or 3 ft. Leaves, several times palmately dissected in narrow lobes or only pinnately divided. Flowers, blue, terminating in a dense globular (capitate) cluster, from whence the name capitata. Back country and cultivated. May.

**Linaria Canadensis**—"Toad Flax"—Stems, slender, 6 inches to 2 feet high. Leaves, small and narrow on flowering stems; on the lower shoots leaves are broader and often opposite or whorled. Flowers, small, blue, resembling a very tiny snapdragon, with a slender nectar spur. Park. February-March.

**Lupinus sparciflorus**—Slender, sparingly branched, 1 to 2 feet. Leaflets, 5 to 7, narrow, 1 to 2 in. long. Flowers, violet, upper lip 2-parted. Pealike pod,  $\frac{1}{2}$  to 2 in. long. Park. March-April.

**Nemophila Insignis**—"Baby Blue Eyes"—Tender, more or less hairy herbs. Leaves, parted into small oblong divisions. Flowers, an inch or more across, from azure blue with white center and more or less dotted to deep blue. Cultivated. March-April.

**Phacelia grandiflora**—Coarse, glutinous plants, 1 to 3 feet high. Leaves, roundish, irregularly toothed, 3 to 4 in. long. Flowers, lavender, variously veined with purple; about 2 in. across with large anthers. The plant is very glutinous and badly stains hands or clothes. Pueblo lands. May.

**Phacelia Parryi**—A foot or so high, rather hairy. Leaves, alternate, oval, coarsely toothed, 1 to 2 in. long. Flowers, deep purple with yellow stamens, resembling in shape the Baby Blue Eyes. Back country and cultivated. February-March.

**Phacelia ramosissima**—"Wild Heliotrope"—Branching straggly herbs, rough and hairy. Leaves, pinnately 5 to 7 divided, somewhat fern-like in appearance. Flowers, bright violet-blue, in coiled spikes, stamens quite prominent. Park. February-April.

**Phacelia Whitlavia**—"Wild Canterbury Bell"—A foot or two high, very hairy and glandular. Leaves, oval and toothed, 1 in. to  $1\frac{1}{2}$  in. long. Flowers, purple, an inch or so long, bell-shaped with long stamens. Cultivated. March-April.

**Salvia carduacea**—"Thistle Sage"—Stems stout, 1 to 2 ft. Leaves, all at base



- and thistle-like, with cobwebby wool. Flower whorls inch or so through with about 6 spiny, woolly bracts beneath. Flowers, 2-fringed lips. sky-blue, red anthers. March-April. Cultivated.
- Salvia Columbariae*—"Chia" or "Sage"—Six inches to 2 feet high. Leaves wrinkled and pinnate, with cut lobes. Flowers, in a spike of interrupted heads; 2-lipped and blue, but with wine-colored bracts. Cultivated. March-April.
- Sicyrinchium bellum*—"Blue Eyed Grass"—Stems, flat and clustered. Leaves, basal and grass-like. Flowers, 4 to 7, coming from 2 nearly equal sheaths. Purplish blue with yellow center,  $\frac{1}{2}$  in. to 1 in. across. Belongs to Iris family. Park. February-May.
- Solanum Xanti*—"Violet Nightshade"—Shrub herbs, several feet. Leaves, 2 in. or less, often undulated margin. Flowers, about  $\frac{3}{4}$  in. across in clusters, violet, with green spots at base and yellow anthers. Park. Spring and Summer.
- Vicia Americana Linearis*—Smooth, weak, 2 to 5 ft., climbing by branched tendrils. Leaves, pinnate, leaflets 8 to 12, very narrow, 1 to  $1\frac{1}{2}$  in. long. Flowers, purplish or bluish, about  $\frac{3}{4}$  in. long, pea-shaped clusters of 4 to 8. Climbs over shrubs. Park. April-May.
- Vicia exigua*—"California Vetch"—Slender, 1 to 2 ft., high. Leaves, pinnate, leaflets 4 to 6, oblong to narrow. Flowers, pealike, 1 to  $2\frac{1}{4}$  in. long, white or purplish, pod smooth. Park. April-May.

## PURPLE

(Includes magenta, and white parts.)

- Abronia maritima*—"Sand Verbena"—Stout, glutinous plant with prostrate stems. Leaves, opposite and very thick, about 1 inch or less long. Flowers 5 to 15, clustered into deep purple head, verberna-like. Grows on beach, back of thick sand.
- Calandrina caulescens*—"Wild Portulaca"—Prostrate, branching herbs, smooth. Leaves, narrow, 1 to 4 in. long, watery. Flowers, loose clusters, magenta nearly an inch across, or sometimes very small. Orchards and open fields and hills. March-April.
- Collinsia bicolor*—Stems a foot or so high. Leaves, lower oblong, upper lance-shaped, opposite. Flower, 2-lipped, the upper lilac or white, the lower three-lobed and rose purple. Clustered evenly at intervals and resembling a miniature Chinese pagoda. Park and cultivated. March-May.
- Fritillaria biflora*—"Chocolate Lily"—Stem, stout, 2 to 3, rarely 1 flowered. Leaves, 2 to 6, mostly near base, 2 to 4 in. Flower, bell-shaped, greenish or mostly dark purple, nearly 1 in., each segment with a greenish band running lengthwise. Mission Valley hillsides. April-May.
- Lupinus hirsutissimus*—Lupine—Rather stout, 8 to 12 in., covered with small stinging hairs. Leaflets, 5 to 7, broadly wedge-shaped, 1 in. to  $1\frac{1}{2}$  in. long and much shorter than their stem. Flowers, reddish purple, pea-shaped, upper lip deeply cleft. Back country. March-July.
- Mirabilis Californica*—"California Four O'clock"—Somewhat prostrate and much branched, a foot or so long. Stems, purplish, swollen joints. Leaves, opposite, triangular to oval, about 1 in. long, somewhat rough. Flowers, magenta with protruding yellow stamens, in many few-flowered clusters. Park. Spring and Early Summer.
- Opuntia prolifera*—"Cholla Cactus"—Three to 10 feet high, elongated, cylindrical joints, covered with oblong tubercles which bear slender straw-colored spines. Flowers, purplish red, densely clustered at ends of the branches. The skeletons of old branches are hollow tubes of woody basket-work. Park.
- Orthocarpus purpureus*—"Owls Clover"—Six to 12 inches high. Leaves, parted into narrow divisions. Flowers and bracts, in a tufted spike resembling a sash tool paint brush. The effect is of purplish hue. Often called "Pink Paint Brush."
- Penstemon heterophyllus*—Green plants seldom bluish, many stems, slender from woody base, 2 to 3 ft. high. Leaves, lance-shaped or narrower. Flowers, in rather loose clusters, trumpet-shaped, purple, shaded to pink. Back country. June-July.
- Penstemon spectabilis*—Bluish and smooth throughout, 2 to 4 ft. high. Leaves, oval or oval-lance shaped, the upper ones clasping the stem. Flower clusters, 1 to 2 ft. long, pyramidal, dense. Flowers, tubular, rose purple. Back country.
- Trifolium tridentatum*—"A Clover"—Six inches to 2 feet high, smooth. Leaflets, very narrow and sharply saw-edged, foliage variable. Flowers, pea-shaped, about  $\frac{1}{2}$  in. long, bright purple with dark centers. Park. April-May.

## YELLOW

(Includes orange, white, light buff.)

- Amsinkia spectabilis*—"Yellow Forgetmenot"—Whole plant set with bristly hairs. Leaves, mostly narrow. Flowers, light orange, with deeper orange spots on throat, in coiled spikes, 3 to 7 in. long. Resembles the Forgetmenot. Park. March-April.
- Brassica campestris*—"Common Mustard"—Smooth herb. Lower leaves, pinnately divided with large terminal lobe. Upper leaves, oblong or lance-shaped with broad clasping base. Flowers, yellow, 4-clawed petals, forming cross. Vacant ovs. Early Spring.
- Brassica nigra*—"Black Mustard"—Stems  $\frac{1}{2}$  to 12 ft. Branches very slender. Lower leaves lyre-shaped with large terminal lobes, upper ones lobed or entire, both kinds stalked. Flowers, yellow and like common mustard in form but borne in large clusters. This is the species mentioned in "Ramona." Mission Valley. Early Spring.

- Calochortus Weedii*—Basal leaf single. Flower stalk branches above. Flowers, mostly yellow, covered within with long, silky hairs, which arise from dark dots on the petals, 1 to 3 flowered. Slopes Mission Valley. June-July.
- Chaenactis glabruscula*—Six to 18 in. high, leafy up to inflorescence. Herbage woolly at first, shedding later. The yellow composite heads have large flowers on the margin, giving effect of rays. Park. April-May.
- Chorizanthe procumbens*—Stems, more prostrate than *C. fimbriata* of the pink section, and the plant is yellow. Otherwise it much resembles the Turkish Rugging, often growing near it. Park Mesas. May-August.
- Cotula coronopifolia*—"Brass Buttons"—Stems, 6 inches to 1 foot. Leaves, clasping stem, divided or entire. Flower heads, yellow, button-shaped and solitary. Grows in wet places. Spring.
- Cuscuta subinclusa*—"Dodder"—Leafless plants with slender orange colored stems, soon leaving ground and becoming parasitic upon the plant on which it is climbing. Often on *Rhus laurina*. Flowers small white and clustered. Park. Spring and Summer.
- Dendromecon rigidum*—"Tree Poppy"—Shrubs, 2 to 8 feet. Poppy family. Leaves, resemble those of willow in shape, 1 to 3 in. long, leathery. Flowers, bright yellow, 1 to 3 in. across, 4 petals, many stamens. Cultivated. March, and most of the year.
- Dicentra chrysantha*—"Golden Dicentra"—Bluish plants with stiff, coarse, leafy stems, 2 to 5 ft. high. Leaves, divided into narrow lobes. Flowers, yellow, shaped much like the "Bleeding Heart," but not pendulous. Back country. May-July.
- Dudleya lanceolata*—"Echeveria"—Fleshy plants with tuft of basal leaves. Leaves, narrow, 2 to 4 in. long. Flower stalks, 12 to 15 in. high, with smaller, broader leaves. Flowers, clustered at summit, reddish yellow, and partly closed, appearing like buds. "Hen and Chicken" family. Park. March-June.
- Echinocactus viridescens*—"Turban Cactus"—Depressed, hemispherical, fleshy, leafless plants, 12 to 21 prominent ribs bearing groups of spines. Usually less than 12 inches in diameter. Spines, straight or recurved, stout reddish, transversely ribbed or ringed. Flowers, yellowish green, about  $1\frac{1}{2}$  in., borne about the depressed center. Park.
- Encelia Californica*—"Encelia"—Shrub, 2 to 4 ft., brittle stems. Leaves, oval, acute pointed, 1 to 2 in. long. Flower heads, 2 to  $2\frac{1}{2}$  in. across, dark centers and bright yellow rays, 4 toothed at ends. January-May.
- Eriophyllum confertiflorum*—"Golden Yarrow"—Plants with white wool, at length smooth, 1 to 2 ft. high. Leaves, parted into 3 to 7 narrow divisions. Flower heads, golden yellow in dense flat-topped clusters. Park. May-June.
- Erysimum asperum*—"Western Wall Flower"—Herbage rough,  $1\frac{1}{4}$  to  $2\frac{1}{2}$  ft. high. Leaves, narrow, 3 to 6 in. long. Flowers, orange, about 1 in. across. Pods, four-sided, 3 to 4 in. long and very narrow. Back country.
- Eschscholtzia Californica*—"California Poppy"—"Copa de Oro"—The Spanish name, Copa de Oro, means Cup of Gold—12 to 18 in. high, branching. Leaves, finely dissected, bluish. Flowers, 2 or 3 in. across, usually orange, but ranging to light buff. Many stamens, bud with mitre-like cap. Park and everywhere. Spring.
- Fremontia Californica*—"California Slippery Elm"—Shrubs or trees from 2 to 20 ft. Leaves, rounded, 3 to 5-lobed, whitish beneath, 1 to 2 in. wide. Flowers, short-stemmed, on very short, lateral branches, numerous 1 to 3 inches across, brilliant gold, 5 cleft nearly to base. Discovered by Gen. Fremont when crossing the Sierras. Back country.
- Hazardia squarrosa*—Plants of shrubby brittle stems, about 18 to 30 in. high. Leaves, clustered thickly, clothing stems, sharply toothed. Flowers, in numerous yellow heads with yellow pistils protruding. Park. March-April. September-October.
- Helianthemum Aiderssoni*—Stems slender, rush-like, somewhat woody below, 1 to 2 ft. high, rounded bush. Leaves, few, narrow. Flowers, on slender pedicels at ends of branches, about 1 in. across, yellow. Back country. Spring.
- Hemizonia fasciculata*—A tarweed—Eight to 24 in. high. Basal leaves, with narrow, parted segments, the stem leaves narrow and not divided. Flower heads, yellow, in small, dense clusters. Park. May-June.
- Hemizonia virgata*—Stem, 12 in. or more high, branching at middle into several. Leaves, crowded, needle-like, very short and blunt, with old gland at end. Flower heads, numerous on short, lateral branchlets, yellow, with 4 or 5 rays, strong scented. Park.
- Hosackia glabra*—"Wild Broom"—Woody base, several feet high. Stems, many, slender and branching. Leaves, small, mostly in threes, about  $\frac{1}{2}$  in. long. Flowers, yellow in many clusters along stem, pea-like, about  $\frac{1}{2}$  in. long.
- Hosackia gracilis*—Somewhat prostrate, branching. Leaves, silky, pinnate. Flowers, in clusters, pea-shaped, yellow and rose color. Damp places. Park. Spring.
- Isomeris arborea*—"Bladder Pod"—Shrubby, bad color. Leaves, compound, with three leaflets. Flowers, yellow,  $\frac{3}{4}$  in. long, in clusters, parts in fours, stamens usually 6 to 8, inflated pendulous pods.
- Layia platyglossa*—"Tidy tips"—Stems, about 1 foot high, loosely branching. Lower leaves, narrow and deeply cut, the upper entire. Flower heads, solitary and terminal, yellow rays tipped with white. Park. February-March.
- Leptosyne maritima*—"Sea Dahlia"—Scraggy plant. Leaves, sometimes 6 in. long, two to three times divided into sparse, narrow divisions, somewhat watery. Flower heads, yellow, solitary, on naked stems, 6 in. to 2 ft. long, 3 or 4 in. across. Rays narrow, 3-toothed, grows near the sea and in cultivation. Spring.
- Lilium Humboldtii*—"Tiger Lily"—Bulb, large, with long scales. Stems stout, purplish, 3 to 4 ft. high, 8 to 10 flowered. Leaves, wavy margined. Flowers, large, 6 to 8 inches in diameter, segments strongly curled back, golden yellow, spotted with pale purple changing to red or brown. Back country and cultivated. July.



*Linaria vulgaris*—"Butter and Eggs"—Very similar to *L. canadensis* in the blue section, except for yellow and orange flowers, and is stronger in appearance. June.  
Grows in waste places.

*Melilotus indica*—"Yellow Melilot"—Main stem erect, with many rather spreading branches from above the base. Plant looks something like alfalfa. Leaves, trifoliate, leaflets narrow and finely toothed. Flowers, small, yellow, pea-like, in loose spikes. Park—damp places. Spring.

*Mentzelia laevicaulis*—"Blazing Star"—Stem, stout, branched 2 to 3 ft. high, often light colored. Leaves, lance-shaped, 2 to 6 inches long, deeply toothed. Flowers, light yellow, 2½ to 3 in. broad. Stamens numerous and about the length of the petals. Cultivated. May-September.

*Mimulus brevipes*—"Stem 1 to 2 feet, gummy. Leaves, hand-shaped, 1 to 4 in long. Flowers, tubular, large, yellow, with 2 ribs running down throat. Monkey flower family. Park. Spring.

*Nicotiana glauca*—"Tree tobacco"—Loosely branching shrubs or tree like, 15 feet or so high. Leaves, bluish, 2 to 6 in. long, rather narrow, the young growth much broader. Flowers, in loose compound clusters, yellow tubular, 2 in. long.

*Oenothera bistorta*—Several inches to a foot or so high, spreading. Leaves, 3 to 4 in. long, the edge irregularly toothed. Flowers, yellow, petals about ½ in. long, with brown spot at base. Seed case at length long and twisted, whence the name *bistorta*. Park. Spring.

*Oenothera Cheiranthifolia suffruticosa*—Stems, prostrate, plant of silvery hue. Leaves, small, oval, stemless. Flowers, yellow and larger than *O. bistorta*. Sand Beaches. Most of year.

*Opuntia Engelmanni*—"Prickly Pear"—About 3 ft. high, flattened stems with successive compressed oval joints. Joints 6 to 12 in. long, studded sparsely, with bundles of stout spines. Flowers, solitary, yellow or red about 3 in. across. Fruit, purple, pulpy, 2 in. long. Park.

*Pentachaeta aurea*—Small, slender plants. Leaves, very narrow and sparse. Flower heads, mostly solitary at end of branches, 50 to 70 close set, yellow rays and yellow centers. Park. Grows in masses.

*Platystemon Californicus*—"Cream Cups"—Delicate, hairy herbs, 6 in. to 1 ft. high. Leaves mostly opposite, stemless, 2 to 4 in. long. Flowers, on long stems, an inch or so across, cream colored with often a yellow spot at base. Buds have a poppy-like appearance. Park. March-April.

*Viola pedunculata*—"Yellow Pansy"—Leafy prostrate stem, 2 to 6 in. Leaves, with long stems, oval, toothed margins. Flowers, long-stemmed, deep golden yellow, tinged brown on outside upper petals. Odor of peaches. Park. February-March.

#### PINK

(Includes white.)

*Abronia ubellata*—Like *A. maritima* in purple section, but with pink flowers. Beach. *Chorizanthe fimbriata*—"Turkish Rugging"—Stem, erect or spreading, 4 to 10 in. high. Whole plant red and covers ground like a rug. Leaves, most basal, soon disappearing. Flowers, pink, clustered in the forks or clustered on terminal branchlets and the calyx lobes are fringed on each side.—Park. May-August.

*Clarkia Elegans*—Stems 1 to 5 ft., rather stout, somewhat bluish. Leaves, oval to narrow, toothed. Flowers, about 2 in. across. Pink petals, with long, slender claws and rhomboidal blades. Seed capsules long and narrow. Cultivated.

*Erodium cicutarium*—"Clocks"—Leaves, 6 to 10 in. long, dissected into narrow toothed lobes. Flowers, small, pink in terminal clusters of about 4 to 8. The pistil grows long, dries and splits into five twisted bearded tails. Park. Spring.

*Erythraea venusta*—"Canchalaugua"—Six in. to 2 ft. high, freely branched. Leaves ½ to 1 in. long, opposite and pale green. Flowers, 1 in., pink with yellow or white center, numerous over the whole plant. Anthers are twisted after shedding pollen. Park. May-June.

*Gilia Dianthoides*—"Fringed Gilea"—Stems, 1 to 6 in. high. Leaves, very narrow and about ½ in. long. Flowers, pink with white base, dark dot on each petal. Outer edges are fringed. Grow in dense patches. Park. Early Spring.

*Godetia grandiflora*—Stems, 1 to 2 ft., stout. Leaves, many oblong and pointed, 1 to 2 in. long. Flowers, in short spike or dense cluster of short sub-terminal branchlets, rose red with deeper blotch in center, 2 or 3 in. across. Cultivated.

*Lavatera assurgentiflora*—"Tree Mallow"—Shrubs, 6 to 15 ft. Leaves, 3 to 6 in. across, palmately 5-lobed. Flowers, pink, veined with maroon, 2 in. or so across, organs similar to *Hibiscus*. Vacant lots. April-May.

*Malvastrum Thurberi*—"False Mallow"—Shrubby at base, 3 to 15 ft. high. Downy foliage. Leaves, thick, 1 in. or so across, wavy margined. Flowers, pink, an inch or so across, clustered in leaf axils or in a leafless spike. Stems and pistils united in a column. Park. Spring and Summer.

*Perezia microcephala*—Somewhat stout, 3 ft. or more high, leafy, herbage rather rough. Leaves, thin, 4 to 8 in. long, 1 to 3 in. wide, broad, clasping base, finely saw-toothed. Heads of flowers, numerous, 10 to 15 flowers, rose colored. Mission cliffs. July-August.

*Rhus integrifolia*—"Lemonade berry"—Shrubs, becoming small trees, heavy twigs. Leaves, oval, about 2 in. long, rigid and leathery. Flowers, in dense terminal clusters, rose colored and very small. Park. Spring.

*Sidalcea Malvaflora*—"Wild Hollyhock"—Several stems, 8 in. to 2 ft. Leaves, round in outline, but often cut in segments to base. Flowers, pink in long terminal cluster. Stamens in a column around pistil-like other flowers of *Malva* family.

*Symphoricarpus racemosus*—"Snowberry"—Shrubby, 2 to 3 ft., stems sometimes trailing. Leaves, opposite, round to oblong, 1 in. to 1½ in. long. Flowers, small, mostly in terminal clusters, and pink. Berries in fall, waxen white, ¼ to ½ in. in diameter. Back country.

#### RED

(Includes vermillion, with yellow and orange.)

*Anagallis arvensis*—"Pimpernel"—Prostrate, spreading stems, 4-angled. Leaves, oval, usually opposite. Flowers, solitary, on axillary stems, orange vermillion, ½ in. across, petals rounded and purple at base. Common everywhere. Spring and Summer.

*Aquilegia truncata*—"Columbine"—Stems, 1 to 3 ft., slender. Leaves, sparse, usually compounded into 3 leaflets, which are lobed. Flowers, terminal, scarlet tinged with yellow, 5 petals, tubular and extended into spurs. Back country.

*Audibertia grandiflora*—"Humming Birds' Sage"—Coarse plants with woody stems, 1 to 3 ft. Leaves, opposite, wrinkly, white woolly beneath, lower ones on margined stems, upper ones stemless. Flowers, crimson, in clusters over a foot long, with many large, widely separate whorles. Back country. April-May.

*Castilleja Marini*—"Indian Paintbrush"—Stems, rather slender, branching from near somewhat woody base, prostrate at base, sticky. Lower leaves, narrow, the upper broader, divided. Flowers, with conspicuous colored bracts, tubular, ½ to 1 in. long, tinged red or yellow. All in close, rounded spikes, giving effect of a sash tool paint brush. Back country. Cultivation.

*Delphinium cardinale*—"Cardinal Larkspur"—Stems, 3 to 10 ft., greatly branched. Leaves, large, 5 to 7-lobed nearly to base, the lobes cleft. Flowers, 5-spurred, the spur an inch or so long. Upper petals yellow tipped with red. In wide, spreading clusters. Seed pods three. Back country and cultivated. June-July.

*Diplacus glutinosus*—"Monkey Flower"—Glutinous shrubs, 2 to 6 ft. Leaves, narrow and margins rolled backward. Flowers, corn color to cardinal, 1½ to 3 in. long, funnel shaped with 5 lobes. The lips of stigma close on being touched, or after receiving pollen. Park. Spring and Summer.

*Lathyrus splendens*—"Wild Pea"—Vines, with angular stems, climbing by tendrils. Leaves pinnate. Flowers, large and showy and red. This plant resembles vetch, but is larger and has broader leaves and flowers. Back country and cultivation.

*Meconopsis heterophylla*—"Wind Poppy"—Stems, smooth, slender. Leaves, pinnately divided into variously toothed segments. Flowers, solitary, orange, vermillion to scarlet, on long stems, 4 petals 1 in. or less long. Park and cultivated. March-April.

*Penstemon centranthifolius*—"Scarlet Bugler"—Plants smooth and bluish. Stems, 1 to 3 ft. Leaves, folded, and the upper somewhat clasping; 3 to 4 in long. Flowers, scarlet, tubular, in a many-flowered, narrow compound cluster, 1 to 2 ft. long. Back country and cultivated. April-June.

*Ribes speciosum*—"Fuchsia flowered Gooseberry"—Shrub, 6 to 10 ft., with prickly stems and triple thorns under the clustered leaves. Flower stems, with 1 or 2 drooping, bright cardinal flowers and long stamens. Berry covered with prickles. Flowers, fuchsia like. Cultivated. Spring.

*Scrophularia Californica*—"California Bee Plant"—Stems, 2 to 5 ft. high, angled. Leaves, 2 or more inches long, toothed edge. Flowers, small, dull red, ¼ to ½ in. long, 2-lipped, two of the stamens protrude like two little teeth. Park. Spring.

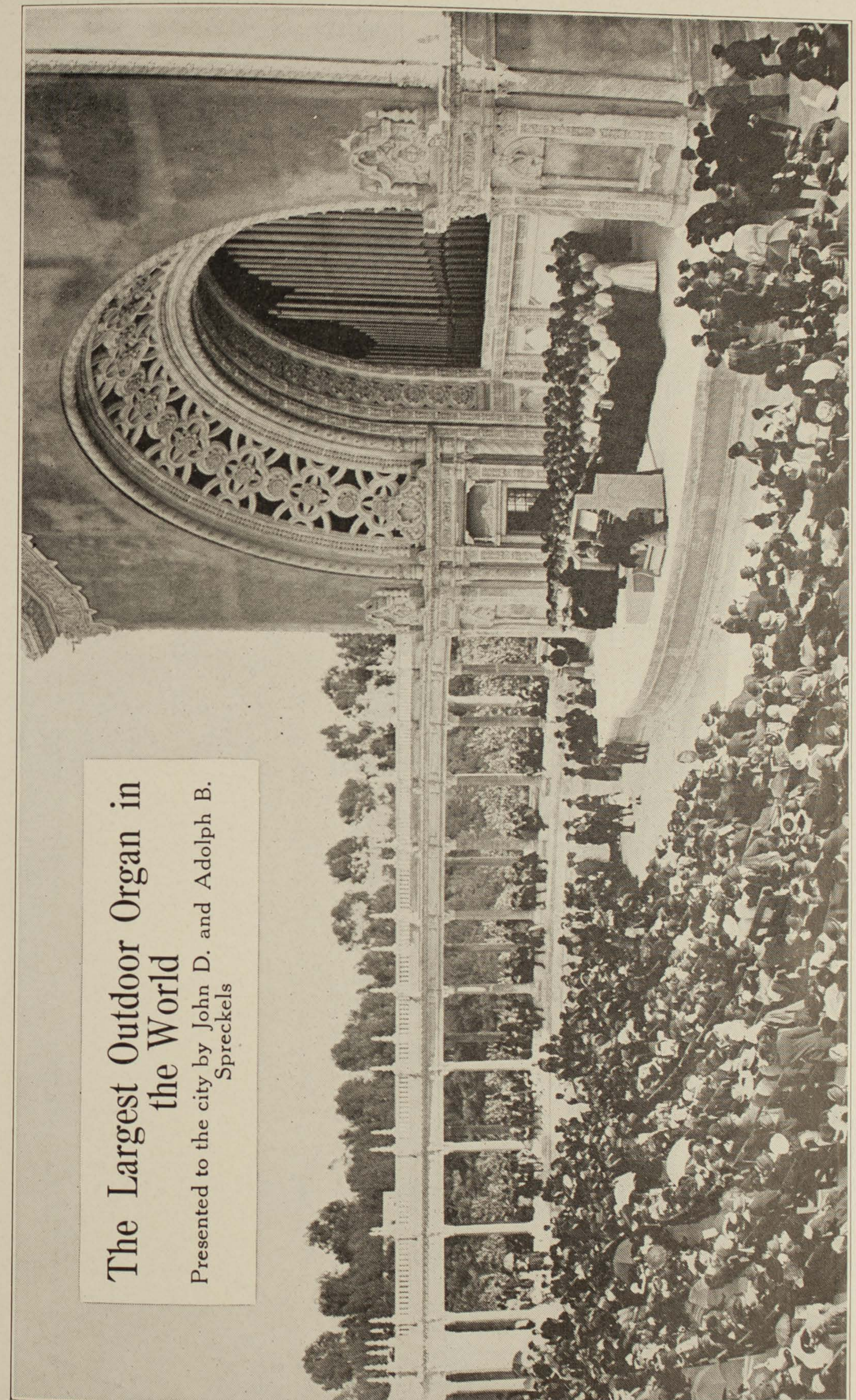
*Silene laciniata*—"Indian Pink"—Several stems, leafy, sticky. Leaves, narrow. Flowers, brilliant scarlet, about 1 in. across, calyx ribbed, petals, five on long claws, the blades cleft, with 2 small appendages at base. Long stamens.

*Zauschneria microphylla*—"California Fuchsia"—Much branched stems, woody at base, rather slender, 1 to 3 ft. Leaves, mostly alternate, narrow, lance-shaped, about 1 in. long, other small leaves, crowded in the axile. Flowers, red in loose spikes, tubular, shaped much like our garden Fuchsia. Park. July-October.



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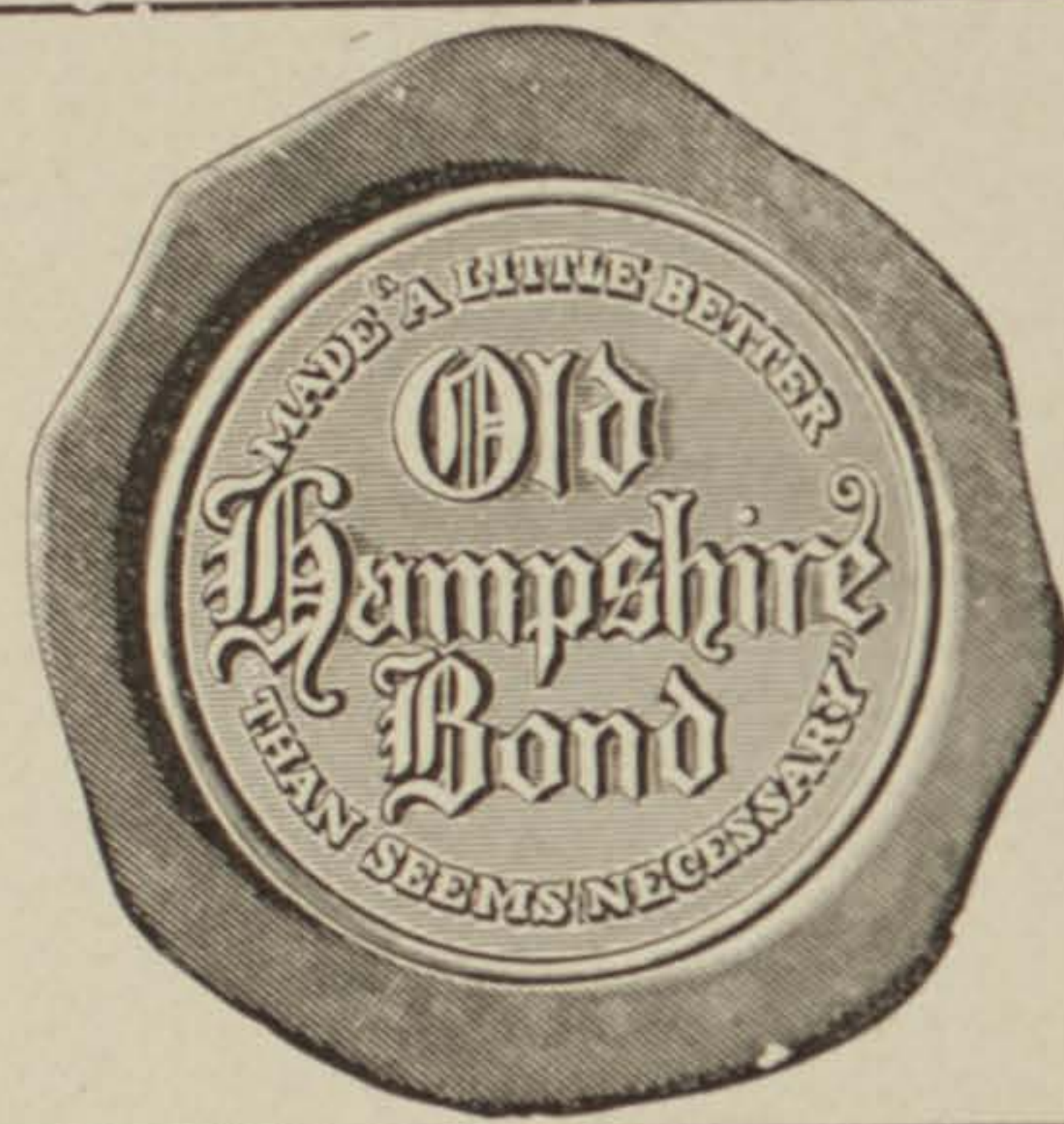


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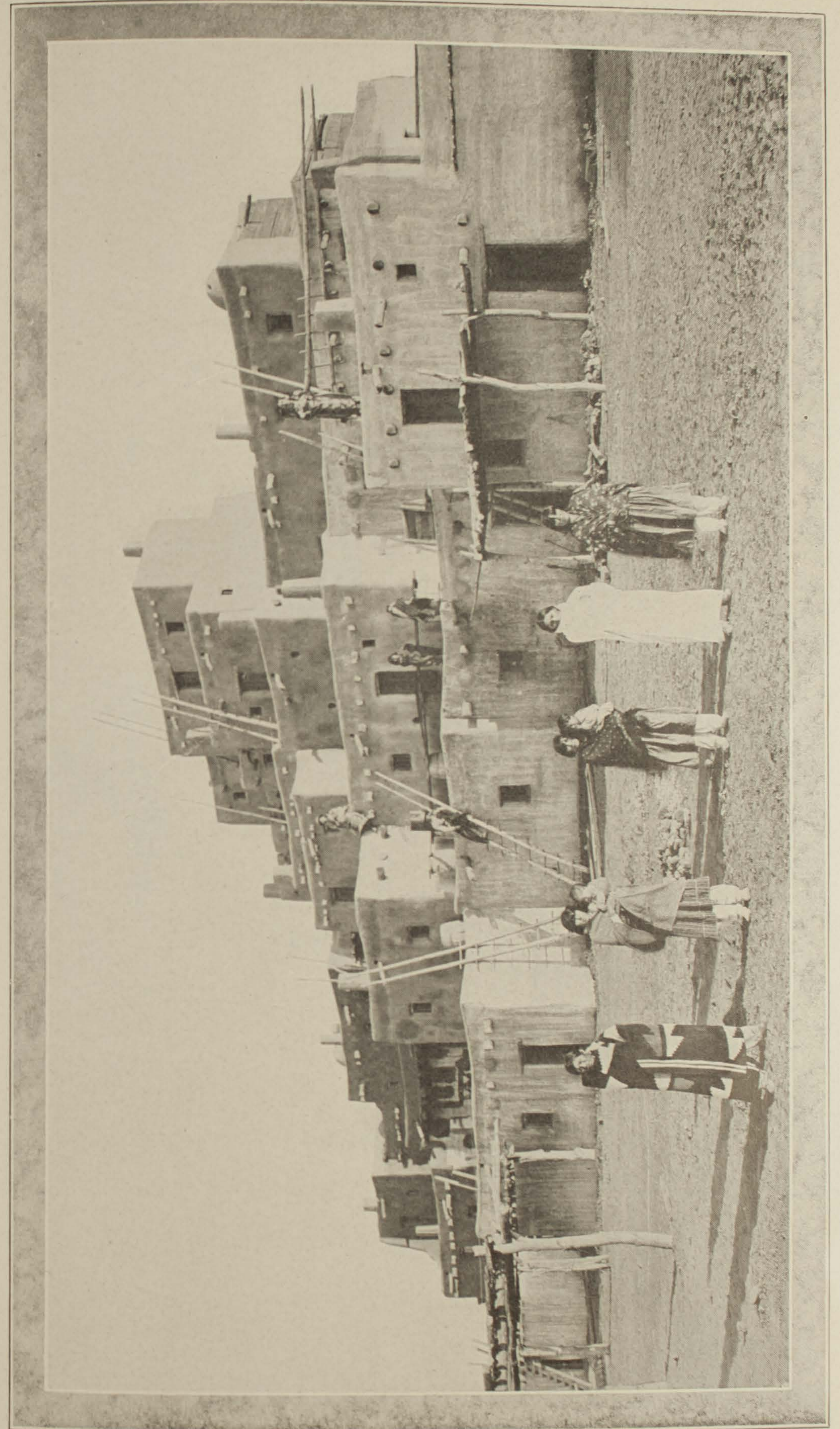
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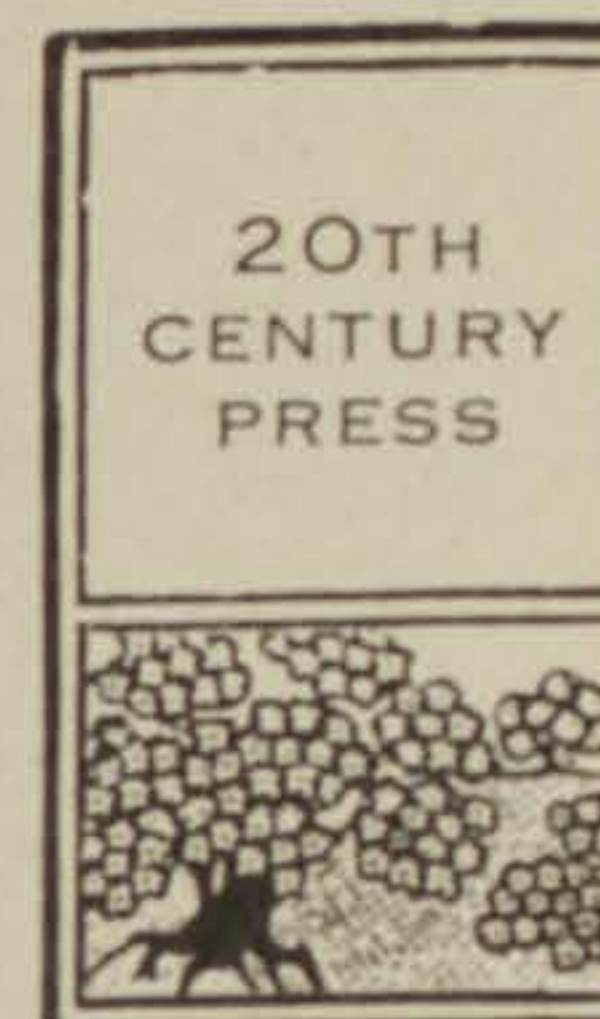
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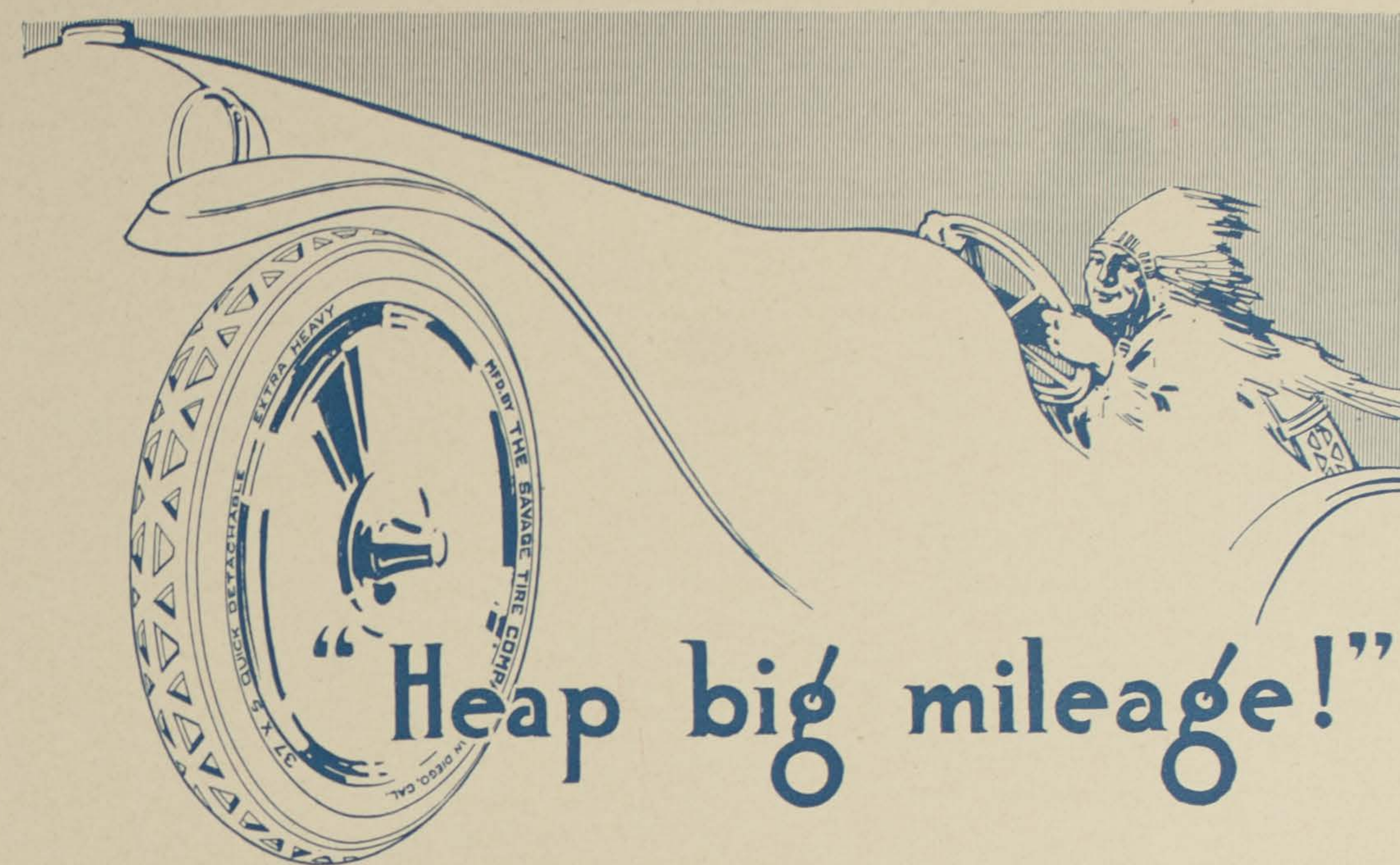
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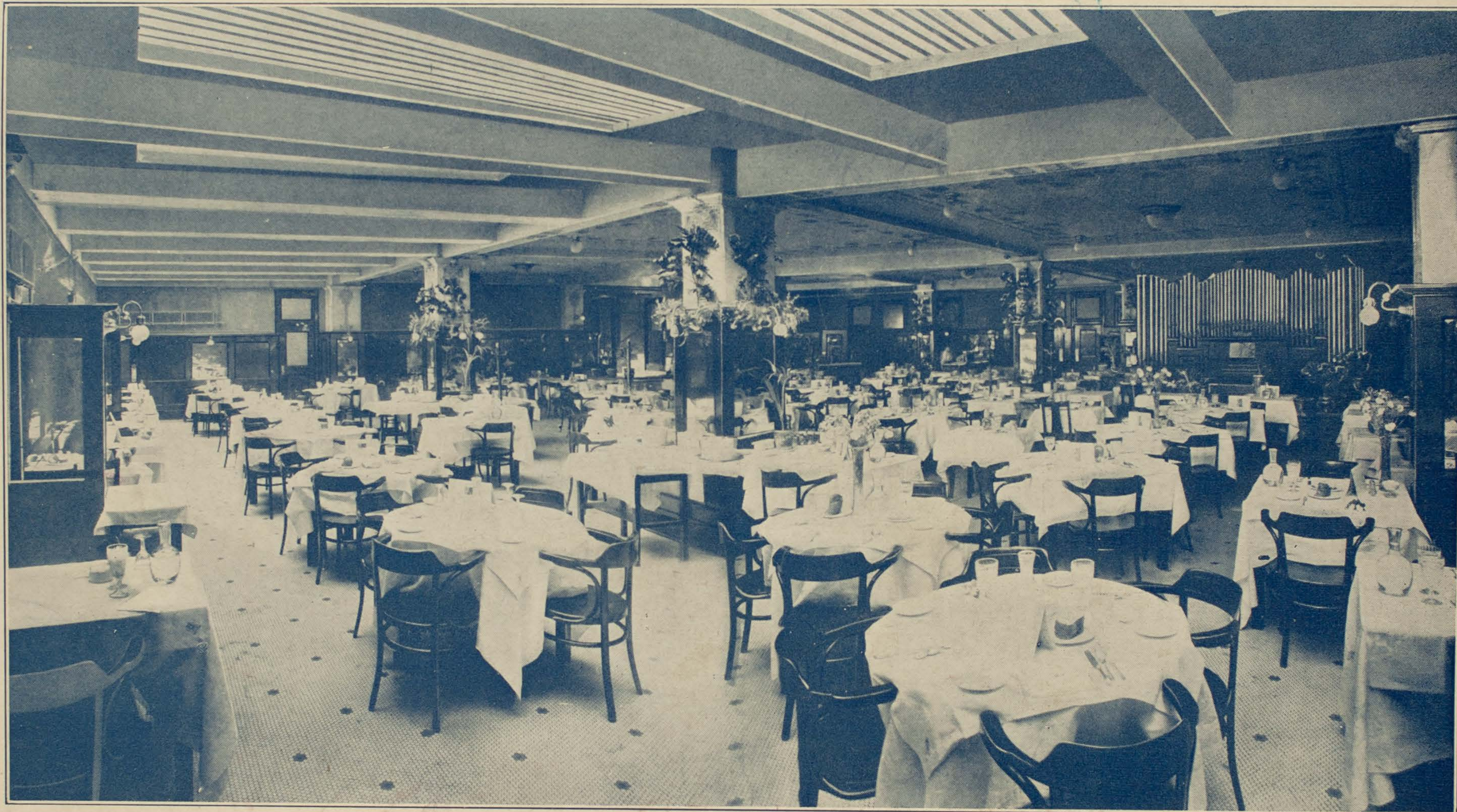
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